University of Alberta

An Integrative Approach to Stress Theory

by

Charmaine C. Sandulac ©

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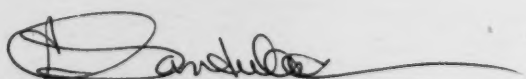

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Abstract

This thesis provides a compilation of evidence to support an integrative approach to stress theory. A theoretical assessment of the biological, psychological, and social-environmental schools reveals a broad range of approaches to this topic. The premise of this thesis is that stress is a multi-faceted phenomenon which cannot be approached from a single theoretical perspective. An integrative approach that includes physiological, psychological, and social-environmental determinants is necessary to understand how stress effects human experience. This thesis provides an overview of mainstream schools of stress and attempts to show the relevance of each theory, and encourages the practitioner to adopt a more comprehensive approach to facilitate treatment and prevention of stress.

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CHAPTER 1
Introduction

Statement of the Problem

In our fast paced, pressure intense world, more and more individuals are experiencing intense stress on an ongoing basis. Stress results from a broad range of stimuli from the objective and subjective domains; and while mild stressors seem to require little physical or mental adaptation, repeated or constant exposure to micro-stressors, which may include constant noise, irritations of a relationship, or a meaningless repetitious job, can do considerable damage to one's physical and mental health (Schafer, 1978). Failure to effectively manage one source of stress may lower one's ability to tolerate another source of stress. This compounding of stress intolerance has been linked to impaired psychological and physiological functioning.

Most experts in stress management now agree that numerous somatic disorders could be prevented if medical treatment addressed causes rather than effects. Unfortunately, the prevailing models of Western health care focus more on physiology than psychological and social-environmental variables linked to stress. Neither the medical model (stress as a set of responses) nor the engineering model (stress as environmental) provide a comprehensive definition of psychological stress (Hinton, 1991). By the same token, psychological theories fail to provide an acceptable explanation for physiological and social-environmental variables. Therefore, in order to counteract the trend toward

stress related symptomatology in Western society, it is important to take a broader view of the stress experience and include the whole person (mind/body) and the environment.

When I began researching the topic of stress I was surprised to find that the most significant works in the field, Coyne and Lazarus (1980), Goldberger and Breznitz (1993), Kutash and Schlesinger (1980), Spielberger et al., (1991), failed to provide an effective overview of stress theory. These works provide insight into key areas of stress; however, they are incomplete with respect to addressing the topic from a macro-perspective. Most theories of stress focus on explanations arising from one of three domains: biological, psychological, or social-environmental. Differences among these schools stem largely from the varying degrees of emphasis placed on particular variables and the causal ordering of these variables (Aldwin, 1994). While each theory provides an important understanding of a particular aspect of the human experience, other equally important factors are often neglected.

The purpose of this thesis is to provide an overview of stress theory that encourages a comprehensive approach to this topic. Thus, by taking cues from the major writers in the field I have produced a compilation of the major approaches to stress theory. This work provides a distillation and synthesis of a large body of knowledge structured into logical categories. This integrative approach incorporates the findings of mainstream theory and allows for a multi-factorial approach that examines the broad range of issues to facilitate

understanding, treatment, and prevention of stress. This work, then, contributes to the investigation of stress and, hopefully, will prove instructive to university students, counsellors, and health care professionals by providing a foundational introduction to an enormous topic.

Overview of the Text

To understand stress theory it is necessary to define operationally what is meant by `stress'. While several definitions may be found, the one used for this work states that stress is any one or a combination of negative emotional states (eg. apprehension, anger, depression, etc) regarded as being negative in that people typically prefer to avoid or reduce them (Houston, 1982, p.195). Our interpretations of stress vary with the theory we use to explain it; for instance, the biological school generally defines stress as a physiological response to a stimulus, while the psychological school cites cognitive and affective causes and the social-environmentalists see stress as a personal reaction to the environment. The biological model measures physiological processes to determine levels of stress. Psychological models, on the other hand, tend to define stress as a psychological phenomenon that may include experiences ranging from thrilling challenge to utter boredom. This school uses a variety of measures to determine levels of stress including direct report, psychometric assessment, task performance, and psychiatric records. Social-environmental theories of stress focus on cultural influences, interpersonal relationships, family

systems, role changes, and personal behavior as key factors in the experience of stress (Cameron & Meichenbaum, 1982; Lazarus, 1966; Romano, 1992). Social-environmentalists tend to measure stress through social climate and deviance/crime, family violence, divorce, and other dysfunctional acts reflect a `stressed' society. Researchers continue to disagree about the nature of causal directionality among the various stress agents because it is not yet clear whether physiological, affective, or cognitive processes are primary in the stress response (Aldwin, 1994). Chapters 2, 3, and 4, provide overviews of these mainstream theories which, when perceived as a whole, will provide us with a foundational understanding of the causes of stress.

We will explore the effects of coping strategies and interventions in chapters 5, 6, and 7. These chapters overview the physiological and psychological effects of stress, strategies and defense mechanisms, and stress management techniques.[1]

With regard to physiological effects of stress (chapter 5): there appears to be consistency between chronic emotional disturbance (such as repression, denial, hostility, and aggression) and disease (Hafen et al., 1996). Psychological factors, including personality, play an important role in coping patterns (chapter 6) which in turn affect susceptibility to various illnesses.

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[1]Social-environmental effects will be discussed in chapter 4.

To provide adequate information for stress management and prevention it is necessary to understand the dynamics of the stress experience. In chapter 7 we will explore intervention techniques from each of the three key areas of stress theory: physiological, psychological, and social-environmental. It seems reasonable, given that human beings experience stress on a number of levels, that effective stress management strategies will address these particular domains.

The final chapter (8) reviews the preceding chapters and establishes a *raison d'etre* for a comprehensive approach to the understanding of stress. With a foundational understanding of stress theory, the reader will recognize the significance of each school's approach to stress. Likewise, the reader will become aware of the significance of an integrative approach that encourages bi-directional interaction between theories to achieve a broader understanding of this multi-faceted problem. This integrative approach, when applied to theory or intervention, will allow for a more thorough analysis of the issues surrounding stress, and for more effective strategies in treating and preventing stress.

CHAPTER 2
Biological Theories of Stress

Selye's Model

Theorists who define stress from a physiological perspective emphasize physical aspects of the stress experience, i.e., increased heart rate, sweaty palms, `butterflies' in the stomach, and increased breathing rate (Aldwin, 1994; Hafen et al., 1996). The physiological reactions associated with stress are considered to be universal by most biological theorists:

> while people may face quite different problems, in some respects their bodies respond in a stereotyped pattern; identical biochemical changes enable us to cope with any type of increased demand on vital activity...In all forms of life, it would seem that there are common pathways that must mediate any attempt to adapt to environmental conditions and sustain life (Selye, 1982).

Thus, response based theorists tend to define stress as a byproduct of an organism's response to a perceived threat.

Hans Selye pioneered the modern theory of stress; he postulated the general adaptation syndrome(GAS) model to explain the biological origins of stress. Selye termed the initial response to stress the alarm stage, wherein the autonomic nervous system produces a physiological response to a perceived threat. The second stage is known as resistance - the body endeavors to resist the deleterious effects of prolonged stress. If stress continues past the adaptation capacity of the body, the third stage - exhaustion - will result. This is

when the biological systems begin to break down after prolonged exposure to the stress response (Selye, 1982).

Selye's three organismic responses to stimuli (GAS model), do not differentiate between noxious, neutral, or agreeable stimuli. While Selye's response model is an important component of stress research, it fails to sufficiently take into account the psychological and social-environmental facets of human experience. Selye does not explicitly include cognitive or emotional factors and their impact on the adaptive processes. Rather, he focuses on physiological antecedents of stress to explain the link between stimulus and physical response overlooking important psychological and social-environmental aspects.

Zegans' Model

Zegans (1982) postulates a link between a noxious stimulus, the emotional response, and a physiological response. His model of the stress response is similar to Selye's General Adaptation Syndrome in that it recognizes an initial stage of alarm and a final stage that includes exhaustion, but it differs in that it incorporates psychological and environmental factors in a more comprehensive way. Zegans adds two stages to his model of the stress response to include the cognitive/affective components of appraisal and emotional states:

i) stage one: a state of alarm wherein identification of a noxious stimulus leads to increased arousal, orientation toward the stimulus, and cessation of ongoing activities;

ii) stage two: appraisal of the stressful provocation - including identification of the stimulus to determine whether the stimulus should be ignored, investigated, or acted upon immediately;

iii) stage three: developing a coping strategy to decrease or eliminate the threat;

iv) stage four: involves acutely dysphoric affect states (grief, anxiety, anger, panic), inadequate ego defenses, poor cognitive organization, and activation of altered autonomic and neuroendocrine patterns. This response comes from inadequate, inappropriately deactivated, or excessively prolonged coping reactions;

v) fifth stage: the relation of stages of the stress response to alterations in body processes. Each of the above stages is accompanied by physiological reactions. Physical problems can occur with prolonged alarm, inadequate appraisal, inadequate coping, and prolonged coping. These reactions form the basis for stress related disease (p.141).

Zegans (1982) proposes that different physiological responses occur during each of the intermediate stages of the stress response.

The final outcome of the stress response is one of three possibilities: mastery, exhaustion, or disorganization. *Mastery* is the result of appropriate and adequate coping strategies. *Exhaustion* occurs when the coping reaction is insufficient to handle the threat. The individual may continue with the ineffective coping strategy or search for a new strategy. An extended coping phase will result in fatigue and exhaustion. Disorganization occurs if an individual lacks

coping strategies for the stressor, or if anxiety prevents employment of an appropriate strategy. *Disorganization* results in a sense of panic wherein exaggerated fight or flight mechanisms occur, thereby eliciting a bodily state of emergency. The physiological results of stress induced disorganization are dependent on the condition of the organism (Zegans, 1982).

Hamilton (1982), states that physiological stressors include pain, fever, fatigue, extreme temperature, intense and intermittent noise, and sleep loss. The degree to which these stressors affect biology is determined by "aspects of affective and mood states and of emotionality, to the extent that parts of the organic system interpret these states as stressing" (Hamilton, 1982, p.107). Zegans (1982) notes that biological theorists are beginning to recognize variables generally considered outside the realm of physiology, such as thoughts, emotions, and environmental stimuli, as salient biological factors in disease and health processes:

> There is accumulating evidence that the brain and the peripheral organs are linked in complex, mutually adjusting relationships tuned to social, as well as physical, alterations to the environment. We are returning to a viewpoint fostered by ancient Hellenic physicians, who understood that in treating an illness more than the diseased part and the proximate cause of the malady must be considered. The true physician is the person who never thinks of the part without thinking of the whole, who always sees it as it affects and is affected by everything else (Zegans, 1982, p. 135).

Thus, while Zegans is grounded in biological theory, he postulates a link between mind, body, and environment, and thereby broadens the scope of his approach to the study of stress.

Neurobiological/Immunological Explanations

Kutash and Schlesinger (1980) state that any theory claiming that stress alters body function must demonstrate that brain structures mediate cognitive-affective representations in higher cortical centers and those lower nuclei systems that regulate hormonal and autonomic activity. Kutash and Schlesinger (1980) investigated neurobiological theories that focus on evidence supporting relationships between brain norepinephrine systems and stress. They reported the following findings:

i) measurement of MHPG (the primary CNS metabolite of norepinephrine) is related to affective disorder and stress;

ii) alteration of locus coeruleus function (the major brain center controlling noradrenergic activity) is related to modification of fearful behavior in animals;

iii) the drug clonidine, which inhibits the locus coeruleus and decreases brain levels of norepinephrine and MHPG, is effective in alleviating the symptoms of opiate withdrawal;

iv) opiate withdrawal and panic have a common neurobiological mediation;

v) measurement of noradrenergic function in clinical samples may help in designing new and more effective psychopharmacological treatments for anxiety or stress syndromes (p.121).

In sum, it is their belief that biological representations of cognitive-affective states can be found in the body. To them, compelling evidence indicates that the central nervous system and noradrenergic system play important roles in forming the neurobiological substrate of the stress response (Kutash and Schlesinger, 1980).

Neuropsychological studies of stress suggest that the central nervous system plays a key role in the stress response. (Gray (1982) developed a theory which starts with the premise that stress results from an under-hypervigilant, or reduced, state of arousal to potentially threatening stimuli.) The brain system receives excitatory inputs and goes into a state of heightened arousal and this, in turn, produces stress (Gray, 1982). Brain systems, namely the behavioral inhibition system (BIS), are instrumental in the fight or flight response and, as well, appear to be intimately connected to stress responses (Gray, 1982).

Aldwin reports that the increased arousal of the sympathetic nervous system prepares the body for reaction - the fight or flight response (Aldwin, 1994). According to Cannon, who named the fight or flight response in 1939, the perception of a threat activates the hypothalamus and pituitary glands which in turn causes a release of epinephrine and norepinephrine from the adrenals which stimulates physical reaction - fight or flight. Once the threat has been removed the parasympathetic nervous system returns the body to a homeostasic state by lowering the heart rate, breathing rate, and other autonomic responses.

Zegans (1982) reports that hormones released during the stress response directly affect the immune system:

> the central nervous system and the immune have complex, bidirectional relationships; and there is evidence...that the brain monitors immune system processes (Aldwin, 1994).

He goes on to suggest that cognitive-affective responses to stress affect the hormonal balance of the body, increasing the probability of illness. It appears then that the central nervous system is linked in a complex way to the immune system, both modulating and responding to changes in immune status (Aldwin, 1994; Hafen et al., 1996; Zegans, 1982).

Psychophysiological research suggests that events threatening one's security and causing adaptive/coping behavior will cause notable changes in the function of most bodily tissues, organs and systems. These physiological effects cause a reduction in the immunological response of the body. Zegans (1982) claims that emotional distress will "alter the incidence or severity of those diseases for which immunological resistance or deficiency states are found" (p. 149):

> There appears to be anatomical, physiological, and neurochemical evidence that cognitive-affective responses to stress can alter the functioning of those vital hypothalamic-pituitary pathways that modulate endocrine, autonomic, and immune processes. Alteration of these systems and of the brain sets the stage for the onset of disease. The fact that the brain itself can be a target organ for hormones produced both by its own neurosecretory cells and by the pituitary

> suggests that brain functioning can be altered by stress (Zegans, 1982, p.150).

While it is clear that the stress response affects the neuroendocrine and adrenal pathways, the precise manner in which it affects the immune system is still being investigated (Aldwin, 1994; Hafen et al., 1996).

Stress and Disease

It is generally acknowledged that the adaptational system (mediating cognitive, affective, and physiological response) can collapse under prolonged strain. Genetic or acquired tissue frailty may be exacerbated by this intense reaction. When tissue tolerance is exceeded, the potential for illness is increased. The homeostatic balance of the system can thus be affected at any or all stages of the stress response: during orientation - alarm, appraisal, inadequate coping mechanisms, and/or failure to cope (Hafen et al., 1996; Zegans, 1982).

Everly and Rosenfeld (1981) note that a stress-responsive organ is slow to return its baseline level of activity after it has undergone psychophysiological arousal, resulting in homeostatic failure. Such homeostatic failure has been implicated in the onset of disease. In their investigation of this relationship Everly and Rosenfeld (1981) theorized that autonomic excitation which is slow to deactivate from an organ system increases the strain on that system and from such strain psychosomatic illnesses, result (Aldwin, 1994; Hafen et al., 1996).

This is not to suggest that somatic illness will always result from the physiological reaction to stress but it does point to an important connection. Several hypotheses concerning the links between potential stressors and psychosomatic illness have been assembled by Zegans:

i) the physiological stress response may cause harm, especially if an already compromised organ is involved;

ii) the acute stress response may cause temporary harm, but repeated stress may lead to permanent damage;

iii) the acute bodily reaction may become chronic if it becomes conditioned to a benign stimulus resembling the stressor. Such a benign stimulus may be a more regular part of the individual's environment and provoke an unnecessary coping response;

iv) a coping strategy may be used successfully but the physiological component is not terminated when the challenge is mastered. A reverberating circuit is established, which puts unusual strain on the body;

v) a minor stress provocation releases an inappropriately severe physiological response. Modulation is lacking that grades the body's reaction according to the nature of the threat. When all stresses are responded to as major assaults, abnormal physiological reactions are possible;

vi) a physiological response appropriate and adequate to cope with a given threat may result in damage to some other aspect of the body through inhibiting a benign but vital body process or stimulating an irritating one;

vii) coping strategies can misfire when the behavioral component is inhibited but the physiological aspect is expressed (fight behavior inhibited but not its physiological component). The physiological aspects of a blocked action can be continuously repeated since no

> appropriate cutoff signal is received (Zegans, 1982, p.146).

Zegans (1982) cautions that we must not regard stress in terms of negative influences that singularly cause the individual to break down mentally or physically. Such a perspective places excessive importance on external factors. Zegans (1982) suggests that we view stress as a condition that produces a variety of reactions, some helpful and others harmful to mental and physical health.

Discussion

This brief overview of the biological theory of stress reveals a steady evolution from strict reliance on physiological explanations to a broader neurobiological perspective. While Selye paid attention to the bodily defense processes after they have been aroused neuro-hormonally, he failed to recognize the physiological and psychological signalling system that recognizes the noxious stimuli and distinguishes them from benign events (Coyne & Lazarus, 1980). Thus, Selye's concept of `perceived threat' was not expanded to include psychological processes. Nevertheless, Selye's response model represents a heuristic component of stress research since it provides a biological foundation from which considerable current research has emerged.

Biological based theorists have been moving beyond the stimulus-disease link to explain internal mechanisms which cause body breakdown and illness. Biological theory is redefining the way we think about disease to include the

behavioral, social, and psychological factors which contribute to the onset, prevention, and reversal of disease. Thus, it appears that the medical community "is gradually coming to regard thoughts, emotions, and environmental inputs as salient biological factors in disease and health processes" (Zegans, 1982 p.135). This evolving conversion from a physiological to a psychophysiological orientation is based on evidence that shows a strong correlation between the activity of the central nervous system and the effectiveness of the immune system.

CHAPTER 3
Psychological Theories of Stress

Psychological Stress

The psychological schools of stress theory regard cognitive and affective variables as vital ingredients of the stress experience. The guiding premise of this orientation is that cognitive factors play a very significant role in whether one becomes stressed (Coyne & Lazarus, 1980). The psychological school accepts that the "fight or flight" response is activated through psychological and psychosocial stimuli, and is not merely a physiological response to a threat as claimed by "old-school" biological theorists (Everly & Rosenfeld, 1981).

Stress often begins as faint, subjective feelings of not being able to cope; the emotional effects include short-term anxiety and guilt, and long-term responses such as depression and alienation (Eaton, 1980). McLean (1984) suggests that stress reactions can be defined with traditional psychological terms ranging from mild situational anxiety or depression to fairly serious emotional disability. Janzen, Paterson, and Blashko (1993) describe an emotional/behavioral model of stress response stages that parallels Selye's G.A.S. model: i) arousal and irritability; ii) fatigue, cynicism, withdrawal, procrastination; iii) exhaustion and collapse - chronic sadness and depression, even suicidal thoughts and attempts are possible.

Glasser (1984) separates emotional and behavioral stress responses into 3 distinct categories: i) personal/emotional - including anxiety, depression, and

alienation; ii) negative behavior - includes alcohol and tobacco consumption, narcotics addiction, fighting, attacks on foremen and other supervisory personnel, poor quality work performance, risk-taking and self-destructive behavior; and, of course the physiological, iii) changes in body functions and reactions - e.g. endocrine and immunological responses. When stress builds up, our body reacts in non-specific ways to specific events with results that can be quite disastrous to one's physical, mental and emotional health. Signs of excessive stress include a change in normal attitudes and behavior as well as the aforementioned physiological symptoms (Howard, Cunningham, and Rechnitzer, 1978).

Psychological theorists go to considerable lengths to distinguish between external and internal stimuli in their explanation of stress reactions, because they believe that whether the stimuli originate from environmental or intrapsychic sources, stress results whenever the stimuli *is perceived as threatening.* For instance, external stressors may include natural disasters, noise, or pollutants, wherein immediate danger may or may not be present. Internal stressors include imagined threats. Ultimately, however, it is the perception of the stressor that determines the severity of the stress reaction (Aldwin, 1994).

Internal stressors such as intrapsychic conflicts produce stress. Intrapsychic conflict involves two "competing and mutually exclusive alternative resolutions" wherein one side of the conflict is slightly stronger than the other (McReynolds, 1991, p.74). Conflicts may take place in the conscious mind or

between the conscious and subconscious. In the latter, an individual's conscious behavior may be opposed by an unconscious proposition of which the individual is unaware (McReynolds, 1991).

Intrapsychic, or intrapersonal, conflicts are independent of other stressful circumstances such as life events. "Intrapersonal conflict implies the contradiction or incompatibility of attitudes, values, and opinions pertaining to personally relevant concepts in the significant areas of a person's life" (Lauterbach, 1991, p.85). The intrapersonal conflict, according to Lauterbach (1991) is similar to approach-avoidance conflict which is characterized by confusion and anxiety.

Core attitudes and beliefs are highly correlated with emotional states and can cause negative affect states when inconsistencies or dissonance are dealt with ineffectively. Measurement of intrapersonal conflict is based on "the assumption that the incompatibilities of a person's real life circumstances are reflected by his conflicting cognitions" (Lauterbach, 1991, p.86). These cognitions are obtained through questionnaires and the inconsistency is then calculated. Thus, intrapersonal conflict is characterized by inconsistency and contradiction in attitudes, values, and beliefs which can lead to intense personal conflict.

Even seemingly stress-free situations can be appraised as threatening. Both high stimulation and low stimulation can be stress inducing. Stress results when perceived coping incapacity (PCI) is high; in other words, the individual

does not feel able to cope with the situation (Hinton, 1991). Marked individual differences, such as personality traits and states, and introversion and extroversion, influence the degree of perceived coping incapacity (Hinton, 1991).

Hinton (1991) reports a study where psychometric scales constructed to assess PCI and general motivation were applied to the prediction of examination performance and psychosomatic ailments. In this study, the Cognitive Appraisal Stress Test (CAST) measure of PCI significantly predicted psychosomatic ailments in university students, and university librarians during a high-pressure work period but not during a steady work period (Hinton, 1991). CAST Perceived Attention and Concentration Problems subscale and the General Motivation Scale (GEMOS) significantly predicted poor examination performance (essay writing) while high PCI (CAST) related to low motivation (Hinton, 1991). Thus, subjective appraisal of perceived coping incapacity (PCI) is a primary stress generator (Hinton, 1991). Stress, then, is at the center of a complex wherein actual ability, actual demands, perceived coping ability, and motivation are influenced by various stress responses and their consequences.

Interactionist Approaches

According to interactionists, adaptive transactions involve a two-way cause-effect relationship. For instance, the environment is perceived, interpreted, and appraised; coping processes then arise out of personal agendas and are in turn appraised, responded to, and revised (Laux & Vossel, 1982). There are four

basic starting points which we need to acknowledge if we are to understand the interactional approach:

i) behavior is a function of a continuous and bidirectional process of person-situation interaction;

ii) the individual is an intentional, active agent in this process;

iii) motivational, emotional, and cognitive variables play important determining roles on the person side;

iv) the psychological meaning that the situation has for the person is an essential determining factor of behavior (Endler & Edwards, 1982, p.37).

Stress results when one's resources for coping fail to meet the environmental demands (Laux and Vossel, 1980; Lazarus & Cohen, 1978).

The perception of adaptive resources can affect the appraisal of potentially stressful situations, as well as the selection of coping responses to handle such situations (Goldberger & Breznitz, 1982). For instance, a sense of competence may lead a person to perceive a potential stressor as less threatening and to choose a coping response that fosters a successful outcome. Coping resources can also help people to avoid anticipated social stressors. Thus, when demands are greater than resources, and the cost of reaction is high, interactionists propose that stress will increase (Goldberger & Breznitz, 1982).

Hinton (1991) believes that stress is a "self-inflicted" mental state that arises when one appraises demands as being greater than one's abilities to

cope. However, there is some controversy as to when stress is the greatest. Schonpflug (1982) argues that if demands match capacities, or are marginally greater, the individual will experience the greatest stress. Harrison (Schonpflug, 1982), on the other hand, claims that stress is lowest when capacities and demands just match. In either case, stress results from a mismatch between demands and personal resources (Laux and Vossel, 1980).

Two important distinctions highlight the interactionist model: state anxiety - a transitory condition of tension and apprehension, and trait anxiety - a chronic state of tension and apprehension (Endler, 1980). Heinrich and Spielberger (1982) explain that trait-state anxiety theory was developed to supplement drive theory with respect to research on anxiety and learning. Drive theory assumes that aversive stimuli cause an emotional response that contributes to the drive level (Heinrich & Spielberger, 1982). Drive theory predicts that, when learning difficult material, the performance of low-anxious students would be superior to that of high-anxious students, especially in the early stages of learning (Heinrich & Spielberger, 1982).

Trait-state anxiety theory differentiates anxiety as a transitory state from anxiety as a relatively stable personality trait. State anxiety is a transitory emotional state varying in intensity and fluctuating over time; a tense, apprehensive condition caused by activation of the autonomic nervous system (Heinrich & Spielberger, 1982). Trait anxiety, on the other hand, refers to relatively stable individual differences in anxiety proneness - to differences

between people in their tendency to respond to situations perceived as threatening with elevation in state intensity (Heinrich & Spielberger, 1982, p.152). Interactionists, then, consider both person and situation to determine the level of state anxiety and to predict the level trait anxiety (Endler, 1980).

State anxiety is directly related to perceived threat which is defined as the subjective appraisal of a situation as dangerous (Spielberger, 1991). Therefore, situations perceived as threatening increase state anxiety. Thus, state anxiety is low in non-stressful situations and in situations where an existing danger is not perceived as threatening. Trait anxiety, on the other hand, influences the perception of situations as threatening in that persons high in trait anxiety tend to respond to threatening situations with higher levels of state anxiety (Heinrich & Spielberger, 1982).

Studies have demonstrated that both individual predisposition (trait) and stressfulness of the situation must be considered in order to predict changes in state (Endler, 1980). For example, high anxiety-trait individuals in situations where there is no physical danger, report greater changes in anxiety-state than do low anxiety-trait individuals (Endler, 1980). In situations of physical danger, high anxiety-trait individuals do not see the danger as more threatening than individuals low in anxiety-trait (Endler, 1980). It appears that in situations where there is no physical danger, high anxiety-trait individuals react with increased anxiety-state arousal (Endler, 1980). Thus, individuals evidencing high trait anxiety are expected to have higher levels of state anxiety (Endler, 1980).

Heinrich & Spielberger, (1982) present several basic conclusions about the relationship between stress, state and trait anxiety, task difficulty, and performance on complex learning tasks, the most important of which include the following:

i) psychological stress generally results in performance decrements, but some stress may be required to motivate people to perform at an optimal level;

ii) psychological stress evokes higher levels of state anxiety in person who are high in trait anxiety than in low trait anxiety persons;

iii) high levels of state anxiety have drive properties that typically result in performance decrements on difficult learning tasks;

iv) psychological stress tends to facilitate the performance of persons who are high in state anxiety on easy learning tasks, but this is often difficult to demonstrate because of ceiling effects (Heinrich & Spielberger, 1982, p.159).

It appears, then, that emotional and cognitive stress responses are interrelated and thereby affect motivation and behavioral response.

Attribution Theory

The attribution theory formulated by Heider (1958), Jones and Davis (1965), and Kelley (1967) concerns itself with perceptions, or inferences about the intentions and dispositions of others. This theory, unlike pleasure-pain theories of motivation, assumes that the search for understanding is a basic human motivator (Weiner, 1982). Future expectations of success and failure are

based on one's perceived level of ability in relation to the perceived difficulty of the task as well as an estimation of the intended effort and anticipated luck (Weiner, 1991).

Studies show that in achievement-related contexts the causes perceived as most responsible for success and failure are ability, effort, task difficulty, and luck. A study of male and female subjects who rated the similarity of the causes of either success or failure on exams, found two clear dimensions of causality:

i) a locus dimension, anchored at the internal end with causes such as bad mood and no self-confidence, and at the external extreme with causes such as bad teacher and hard exam;

ii) an intentional-unintentional dimension (controllable-uncontrollable), anchored at the controllable end with causes such as never studies hard, and lazy, and at the uncontrollable extreme with nervous and bad mood" (Weiner, 1982, p.228).

Failure ascribed to low ability or task difficulty decreases the expectation of future success more than failure that is ascribed to bad luck, mood, or a lack of immediate effort (Weiner, 1991). Likewise, success attributed to good luck or extra exertion results in lower expectation of future success at that task than does success attributed to high ability or to the ease of the task (Weiner, 1982).

When attributions for failure are ascribed to internal factors, anxiety-related effects may result i.e. panic, confusion, depression, helplessness (Weiner, 1982). "Anxiety and related mood states such as depression are strongly influenced by causal cognitions, which comprise one cognitive

component of the evaluation of the physical and social world" (Weiner, 1982, p.240). When attribution is external the reaction is usually one of surprise and anger rather than incompetence. For instance, if failure is attributed to interference from another individual the reaction will likely not be one of self-incompetence (Weiner, 1982). Anxiety may impede causal inference processes and result in ego-defensive or even self-deprecating causal biases (Weiner, 1982, p.240).

Expectancy is based on the perceived stability of the cause of the prior outcome wherein stable factors will produce greater shifts in expectancy than unstable causes. When stress, in the form of anxiety, is related to low self-esteem a low level of expectancy will likely result in situations of high anxiety wherein failure is attributed to low ability and success to good luck (Weiner, 1982). Thus, evidence suggests that individual perception of past performance is directly related to goal expectations (Weiner, 1982).

A study of task performance (i.e. identification and maze learning), during which interruptions and pain stimuli were introduced after some trials without stress found that the addition of stressors (interruptions, pain) caused task problem solving time to increase (Schonpflug, 1982). The time increase was greater for persons who had underestimated their performance during the non-stress trials; however, persons with no discrepancy between aspiration level and achievement level during the non-stress trials were more tolerant of stress (Schonpflug, 1982, p.294).

Attribution is an important predictor of affect. Individuals who attribute their inability to control environmental noise to their own lack of ability showed greater anxiety than those who attributed it to external factors. Those who attributed their failure to external factors showed no greater anxiety than individuals who were successful in the experiment. Thus, attributions about the causes of events greatly influence an individual's subsequent expectation for lack of control and this, in turn, determines the kind of deficit that occurs. Attributions to internal factors are likely to result in a greater loss of self-esteem than attributions to external factors (Dweck & Wortman, 1982).

Self-focused attention is associated with a tendency to become excessively self-critical, which, in turn, leads to a reduction in positive self-esteem.

> Evidence suggests that focus of attention differentiates between highly successful and less successful athletes. Superior performers are able to control their attention, remain task oriented, and block out distraction. Athletes who focus attention on themselves and how they are doing and view themselves from the perspective of an external observer tend to perform less well (Dweck & Wortman, 1982), p.112).

Thus, poor performance can result when individuals do not devote attention to a task, and when they focus on their shortcomings; in both cases individuals tend to experience decreased self-esteem and increased anxiety.

In order to understand such maladaptive reactions an examination of three variables is essential: a) how self-talk increases maladaptive responding,

b) how success and failure information perpetuates maladaptive cognitions, and c) how behavior eliminates sources of counter evidence. The sense of mastery plays a big role in self-esteem.

> Mastery-oriented subjects attribute success to their abilities and failures to changeable factors, while helpless subjects do just the reverse; when helpless children are taught to attribute failure to changeable factors, improvements occur in subsequent performance; mastery-oriented subjects may not even make attributions of causality during performance unless circumstances make it necessary to do so (Dweck & Wortman, 1982, p.113).

While mastery-oriented individuals view negative outcomes as signals to vary their strategy, failure-oriented individuals are more likely to blame themselves and to neglect alternate strategies (Dweck & Wortman, 1982). Thus, it appears that individuals who have low self-esteem and poor performance attribute their poor performance to their lack of competence (Dweck & Wortman, 1982).

Becker (1982) claims that individuals high in achievement motivation should have higher goals, work harder, and likely have more successes than those lower in achievement motivation. Emotionally labile individuals tend to exhibit more intense stress reactions than emotionally stable individuals (Becker, 1982). Locus of control is the sense of control one feels they have over events in their lives. High internal locus of control, or internal attribution, in situations of success or failure will likely exhibit more intensive emotional reactions than those with external attributions (Becker, 1980). Attributional styles play an important

role in stress levels as evidenced by the following conclusions concerning exam anxiety and attributional style:

i) other things being equal, fear will increase with a) heightened personal importance of success or failure, b) raised level of aspiration, c) lowered momentary subjective estimate of competence, d)increased estimated probability of failure, and e)proximity to the exam;

ii) since these predictors are not independent of each other but form positive and negative intercorrelations that vary with the proximity of the examination, no simple formula can be devised allowing for an optimal prediction at each of the different points of time;

iii) the type of fear curve evidenced before an exam is dependent on the variable success vs. failure orientation. Most of the failure-oriented students were characterized by monotonously increasing levels of fear;

iv) two forms of exam fear: i) uncertainty concerning success-characterizes most success-oriented students. It may be reduced by increasing one's level of competence; ii) fear of failure-a relatively monotonous increase as the exam approached (Becker, 1980, p.284).

These findings are supported by a study of experienced parachutists wherein the peak level of stress reaction occurred well before the jump, in contrast with novice parachutists whose highest stress level occurred just before the jump (Becker, 1980). Thus, success-oriented students are similar to experienced parachutists in that they control their level of fear through coping strategies, while failure-oriented students were similar to inexperienced parachutists who have not yet developed effective coping mechanisms (Becker, 1980). High competence is

characterized by low levels of fear in the time period closest to the critical event. Thus, the key concept of attribution theory is *the individual's perception of competence in a specific performance situation.*

Theories of achievement focus on the motive to achieve success, and the motive to avoid failure. Such motivations are perceived as fairly stable traits. For instance, "high achievement need has usually been found to predict greater persistence and higher performance on tasks and examinations" (Dweck & Wortman, 1982, p.94). It appears that individuals with high achievement needs prefer more difficult tasks with small shifts in aspiration levels with respect to success and failure. Individuals with low achievement needs, however, tend to have greater shifts in aspiration levels.

High anxious subjects tend to perform worse than low anxious subjects when a task becomes more difficult. Stress causes the information processing system to generate long-term memory data for retrieval of previous responses that led to stress reduction (Hamilton, 1982). However, in high anxiety individuals avoidance reaction is likely to be preceded by the retrieval of aversive long-term memory data - or high anxiety data (Hamilton, 1982). Thus, stress in the form of anxiety can interfere with information processing and thereby bias information selection and retention (Weiner, 1982). Anxiety may be increased by the retrieval of aversive memories.

The causes of success and failure appear to fall into three areas: stability, locus, and control (Weiner, 1982). Myriad subordinate causes are also linked to

expectancy changes such as decisions about helping, evaluation, sentiments, and esteem-related affects (Schonpflug, 1982).

Reversal Theory

Apter (1991) discusses an alternative approach to stress known as structural phenomenology, or, reversal theory. Whereas other theories start with objective variables and proceed inward to understand the psychological processes, this theory works in reverse in that it begins in the psyche and works its way out to physiological and behavioral variables. Motivation, emotion, personality, and other psychological processes are examined and objective variables such as the physiological, behavioral, and environmental processes are also considered. Reversal theory proposes that experience and subjective states of mind can be identified in "structural" terms. Reversal theory provides a "more structured and systematic account of the conscious processes" than has previously been available (Sveback, 1991, p.215).

Reversal theory refutes the general assumption that psychological functions and dysfunctions can be explained in terms of balance, equilibrium, or homeostasis. Reversal theory proposes a model of matches and mismatches between preferred and actual levels of certain variables, with the preferred levels changing in discrete jumps under certain conditions (Apter, 1991).

Motivation is experienced on at least two levels: a) lower level and b) metamotivational level. Lower level motivation is open to various interpretations

by the individual giving rise to different degrees of pleasant or unpleasant hedonic tone, depending on interpretation and without the variable itself changing in value (Apter, 1991).

At the metamotivational level, interpretations go in pairs of opposites (metamotivational modes) so that the variable concerned is experienced in one way or another at all times; however, switching from one to another is possible under different conditions. Howard (1991) describes two modes of arousal - telic and paratelic. In the telic mode the individual is in a goal-directed state and engages in problem focused coping to reduce stress. The paratelic mode involves increasing or decreasing arousal through emotion focused coping. According to this author, paratelic dominant individuals are characterized by a lack of goal direction and emotion-focused coping (Howard, 1991).

Apter (1991) described one pair of modes: the anxiety-avoidance and excitement-seeking pair. He notes that in the anxiety-avoidance mode, arousal can be experienced in a range from pleasant relaxation (if low) to unpleasant anxiety (if high). Howard (1991) suggests that the anxiety-avoidance mode often involves high arousal as is noted in gamblers and substance abusers. In the excitement-seeking pair, arousal will be experienced somewhere between unpleasant boredom if low, to pleasant excitement if high.

Each type of stress, then, has its opposite: the stress of anxiety contrasts with boredom, the stress of humiliation in the mastery mode is counterbalanced by the stress of shame in the sympathy mode. The mastery mode is concerned

with power and taking whereas the sympathy mode is concerned with nurturing and giving. According to Apter (1991), people have innate tendencies to be in one mode or the other. A reversal between modes can be most effectively brought about by 3 factors:

i) environmental factors, such as a sudden loud noise interpreted as a threat can bring about a reversal to the anxiety-avoidance mode (high arousal is experienced as anxiety);

ii) frustration - if the preferred level of motivation is not achieved, then the resulting frustration is increasingly likely to induce a reversal. For example, if one does not experience excitement in the excitement seeking mode, a reversal to the anxiety-avoidance mode will take place, and this low level of arousal will be experienced as relaxation;

iii) satiation - As the individual remains in a given mode satiation of that mode builds up, and this will eventually induce a reversal to another mode (Apter, 1991).

Some individuals experience a mismatch between their arousability and their preferred level of arousal. For example, a person who is easily aroused but anxiety-avoidance dominant, will experience anxiety frequently. Conversely, an individual with low arousability who is excitement-seeking dominant may adopt risk-taking behavior in order to achieve a high level of arousal - i.e. gambling, dangerous sports, drugs.

Thus, reversal theory rejects simple homeostatic notions for those of bistability; for example, high arousal may be a preferred state (i.e. when excitement-seeking modes are in operation) and low arousal under other

conditions (i.e.. when the anxiety-avoidance mode is in operation). Arousal preference is metamotivational and each mode not only interprets but sets into action, and controls, activities designed to achieve the preferred level of the variable on which it operates (Apter, 1991, p. 14).

A discrepancy between the preferred and actual level of a motivational variable is referred to as tension. When high arousal is experienced in the anxiety-avoidance mode, which prefers low arousal, it is experienced as tension. Apter (1991) claims that tension is not equated with arousal because arousal may be the preferred state. For instance, in the excitement-seeking mode high arousal is preferred, therefore, low arousal is experienced as tension. Thus, boredom (low arousal) can in principle be as stressful as anxiety (high arousal).

When we experience tension we make an effort to lessen that tension; effort, then, is a determination to overcome the discomfort of tension. According to Apter (1991), tension-stress and effort-stress must be distinguished from one another: tension-stress is a form of unease accompanied by unpleasant feelings such as guilt, anxiety, anger, boredom. Effort stress is the experience of trying hard wherein intense and prolonged effort may become highly unpleasant and thereby produce various types of somatic effects. On the other hand, effort expended in response to challenges rather than threats can remain pleasant. We see then that reversal theory distinguishes between arousal, tension, and effort, and states that tension is stressful if marked or prolonged.

'Burnout' occurs when the individual gives up hope of overcoming tension-stress and becomes resigned to boredom, anxiety, humiliation or some other form of tension. On the other hand, depression may occur when the individual feels his or her efforts cannot meet with success. In the burnout case, giving up occurs after a long period of high effort-stress and determination to succeed (Apter, 1991).

A variety of coping strategies such as positive thinking, decisive action, or a set of exercises, have been touted as stress relievers. This, however seems more true on surface inspection than on deep analysis. Reversal theory refutes the claim that low arousal will result in low stress with clinical evidence supporting the fact that low levels of arousal may facilitate avoidance of anxiety but it does not prevent the stress caused by boredom. Consequently, the aim of reversal theory is not to suppress stress entirely but to prevent it from attaining sufficient force to cause adaptation problems.

Discussion

Interactionists describe stress as the interaction between individual and environment wherein the perceived demands outweigh perceived coping resources. The emphasis is on cognition through perception, appraisal, and choice of coping strategy. When an individual appraises demands as greater than resources, appraisal and coping become interacting variables. Appraisal, then, is the evaluative cognitive process that allows for determination of a coping

strategy. Appraisal involves evaluation of the threat as well as the resources available to cope with the threat. Coping is the application of resources to manage environmental and internal demands and conflicts among these demands (Holroyd & Lazarus, 1982). Appraisals focus on two areas: the threat and the evaluation of resources and potential actions (Holroyd & Lazarus, 1982). Thus, appraisal and coping are key elements to the interactionist explanation of cognitive processes that influence stress behavior.

Attribution theory, on the other hand, includes the role of past performances as a key factor in the appraisal and outcome of an event. Hence, attributionists believe that it is not merely the weighing of demands against resources that determines stress, but one's appraisal of personal capability to apply resources to meet the demand. Thus, a store of information with respect to anticipation and attribution is necessary to determine whether an event will be interpreted as aversive or threatening (Hamilton, 1982). The greater the tendency to expect aversive outcomes the more accessible such information will be to the individual, creating a response bias toward these type of anticipations (Hamilton, 1982).

While interactionists stress the interplay between the individual and the environment, attribution theorists emphasize the role of past experience in determining coping ability. In spite of these differences, both interaction and attribution theory emphasize cognitive processes. From these two perspectives we find that the experience of stress depends on the individual's perception of

the event, previous performances, and available resources. Thus, coping is based on interacting variables including environmental demands, cognitive appraisal strategies, and emotional response patterns.

These views are similar to those accepted by structural phenomenologists (reversal theory) in that psychological variables are considered in conjunction with environmental stimuli. Reversal theorist, however, place more emphasis on motivational processes and arousability than cognitive factors. This model describes stress as a mismatch between preferred and actual levels of certain variables, with cognitive appraisal playing a less substantial role than that ascribed by interactionists and attributionists. Thus, reversal theorists create a structural model of conscious processes incorporating motivational, cognitive, affective, and personality variables, in their explanation of the stress experience.

While stress appears to be a largely cognitive/affective experience with physiological manifestations, another important aspect is personal meaning. Personal meaning implies a dimension of experience that goes beyond cognitive/affective processes to include the individual's belief that the action will have meaning or purpose. There are five personal beliefs that may be challenged by stress: the belief in one's invulnerability, the belief that events are predictable, controllable, and just, the belief that the world is benign and benevolent, the belief that life is meaningful, and the belief in the worth of oneself. Thus, individual response to threat must correlate with one's world view (Meichenbaum & Fitzpatrick, 1993).

Individuals possessed of a strong sense of coherence tend to view the world as consistent and organized. According to Antonovsky (1993), the initial appraisal of a stressful experience will be influenced by the following variables: understanding the problem, deriving meaning from the event, maintaining self-esteem through the experience, and maintaining control over the experience and the consequences (p.35). Thus, three key elements are necessary to maintain a sense of coherence during the experience of stress: understand the problem, have access to resources to manage the stress, and to find a sense of meaning from the experience (Antonovsky, 1993).

When we combine variables from mainstream psychological explanations we find that personality, attributions, cognitions, emotions, beliefs, personal meaning, motivations, and self-esteem are key determinants of the stress experience. Heavy emphasis is placed on cognitive processes because studies have shown that cognitive-affective strategies improve self-esteem and emotional control. Thus, it appears that "an individual's thoughts, feelings and perceptions about an event are more significant in determining outcome than the actual factors present in the event itself" (Scorgie, 1996, p.31). Stress, then, does not appear to stem from physiological reactions, although somatic manifestations may result from stress; nor does it appear to be a result of environmental stressors. Rather, stress is the result of the interaction between the mind, body, and the environment. Thus, it is necessary for both researchers and practitioners to focus on the whole person and, as we shall see in the next

chapter, social-environmental factors, and the multidimensionality of these constructs in the stress experience.

CHAPTER 4
Social-Environmental Explanations A Transactional Model

Socio-Cultural Stressors

Fisher (1978) noted that "anxiety is the intermittent, occasionally chronic sense of being a failure as a human being" and that it is linked to the fact that "one lives with other human beings in a culture that, among other things, presents criteria of humanness" (p. 34). Because individuals figure prominently in each others lives, it is essential that interpersonal dynamics be considered in conjunction with physiological and psychological processes. Status, gender, culture, personal meaning, everyday experiences, role conflicts, and social interaction all figure prominently in both the arousal and the reduction of anxiety.

Addressing social factors allows the researcher to trace the chain of events that leads to stress. Three sets of mutually interacting variables have been identified as part of the sociological system or patterns of stress:

i) those relating to the personal need-value system;

ii) personal systems of adaptive coping/defensive patterns - whether or not the person experiences subjective distress will in large measure be a function of the individual's ability to adapt to, cope with, or defend against adverse life experiences;

iii) life events - may reflect either change or continuity in personal experiences - where the events reflect changing circumstance, life events are manifested as an individual's loss, addition, or redefinition of social positions (Kaplan, 1980, p.68).

In order to understand the cause of stress we must not look only to the chain of events, we must also explain them. "Is [stress] the result of deprivation of intrinsically valued goals, disruption of normal modes of forestalling or reducing the impact of stress associated with life crises, and/or some other circumstances?" (Kaplan, 1980, p.80).

Fast-paced change contributes to our lack of understanding of what is required to maintain satisfactory human relationships. Since we are dependent on other individuals to meet our physical, psychological, and social needs, the origins of stress are often traced to our interpersonal relationships. Here is how Lindgren explained this relationship:

> Other people are important to the satisfaction of our basic physical needs for sustenance, protection, and sex, but they are also vital to the satisfaction of our basic psychological and social needs for love, self-expression, status, and self-respect. Because we are dependent on others for our basic needs, we are to a large extent in their power. Other people can in effect destroy us by withholding the means for satisfying these needs. Thus, a disturbance in our relations with other people arouses the hint of a possibility that the satisfaction of our needs, and hence our very existence, may be jeopardized (Lindgren, 1956, p.21).

Constant change makes it difficult for individuals to know what to expect and how to behave, hence, they become stressed. Lindgren (1956) states that we have at our avail several modes of reacting to constant change:

i) adjust to change - anticipate and participate in change;

ii) resist change;

iii) ignore change perhaps by busying oneself in activity; or

iv) a combination of resistance and adjustment planning for what seems best, adjusting to what must be accepted and resisting changes that seem to threaten our capacity to meet basic human needs (p.22).

No matter how effective our reactions to change we are not immune to stress. Thus, while some individuals rise to the challenge of constant change through adaptive coping processes, others use maladaptive coping mechanisms that actually increase stress.

The structure of social roles may also lead to stress. For instance, role strain - having too much to do; role conflict -discord with spouse, child, or co-worker; inter-role conflict -juggling parenting and work roles; role captivity - being unable to leave a role; and, role restructuring - taking on new roles (Aldwin, 1994). Stress tends to result when one's personal desires conflict with the expectations of others, or when expectations associated with one role conflict with expectations associated with another (Shafer, 1978). Thus, we see that potential stressors may exist in a wide variety conditions; whether a stimulus is appraised as threatening still depends on personal factors.

Environmental Stressors

Researchers generally agree that there are two types of stressors, loosely labelled subjective and objective (Endler & Edwards, 1982; McLean, 1984). Environmental stressors are considered "objective" and they include four basic groups: i) physical properties - physical hazards, pollution, extremes of heat,

cold, humidity, noise; ii) time variables - changes in schedule, shift work, deadlines, time pressure; iii) social and organizational properties - resource conflict, relationship conflict, responsibility overload, monotony, iv) changes in job - loss of job, demotion, over-promotion, transfer, (Eaton, 1980; Holt, 1982; Tung, 1980; Warshaw, 1984). Objective stressors are generally perceived as threatening, except when the individual is unaware of, or has sufficient resources for coping with, the threat (Endler & Edwards, 1982). Aversive environmental conditions, such as pollutants and noise, have subtle but harmful effects.

Other mediating variables also determine whether potential stressors will ignite a stress reaction. For instance, four aspects of the individual and the environment are recognized as key determinants of stress levels: i) physiological factors - substance use or abuse, illness, disruption of diet; ii) individual characteristics - age, sex, ethnicity, stage of life, work addiction, work values, attachment to organization, neurotic anxiety, depressive tendencies, sociability, self-esteem, resistance resources, Type A vs. Type B behavior pattern; iii) situation variables - social cohesiveness, autonomy on job, social support, sense of enrichment; iv) social/organizational factors - social structure, organizational climate; v) social variables - social support, interpersonal relationships, community involvement (Goldberger & Breznitz, 1982; Brief, Schuler, & Sell, 1981). Personal stressors such as: children's discipline, bills, housework, unexpected events, illness, death, and familial/social conflicts, as well as personality and temperament conditions may contribute to the stress levels

(Janzen, Paterson, & Blashko, 1993). Thus, there is a reciprocal relationship between personal and environmental stressors wherein the dynamics of each interact and influence the other dimension (Warshaw, 1984). Hence, stress can seldom be wholly attributed to one particular stimuli (Warshaw, 1984).

Psychosocial Stressors

Culture influences the types of stressors that individuals experience through the sanctioning of normative life changes or through patterns of resource allocation (Aldwin, 1994, p.215). How a culture or society is structured has implications for psychological well-being, not only through the direct allocation of resources, but also through psychological states and stress levels. "Social stress can lead to psychological disequilibrium which the individual attempts to reduce in some fashion" (Schlesinger & Revitch, 1980, p.181). When individuals feel they cannot control events, they may blame themselves and thereby suffer a loss of self-esteem and reduced motivation. Wills and Langner (1980) state that stress related symptomatology may result when an individual lacks the resources and skills necessary to cope.

Psychosocial stress can result from threats to one's security, status, and such threats are usually met with emotional, physical, and behavioral reactions. Thus, a lack of social support and/or resources, as well as one's status, or lack thereof, may be stressful. Individuals of lower socio-economic status, who lack resources and marketable skills, are known to experience chronic stress to a

greater degree than individuals in higher socio-economic stratas. This is borne out by the higher rates of persistent depression in persons of lower economic status. "The modified stress formulation implies a higher rate of psychiatric disorder given the conditions that low-status persons face daily, such as insecurity, lack of social support, and lack of problem solving resources" (Wills & Langner, 1980, p. 169). According to these authors, immigrant and migrant groups, those with most problems and fewest resources, evidence a greater level of psychiatric impairment.

Supportive social relationships play an important role in mental health. Wills and Langner (1980) report that "subjective unhappiness is most strongly determined by interpersonal discord: conflict and rejection in interaction with others" (p. 163). Social supports offer acceptance, reassurance, and assistance, all of which contribute to healthy self-esteem. "Persons without social support show elevated rates of symptomatology suggesting that the condition of low social support is itself a source of stress" (Wills & Langner, 1980, p.164). Scorgie (1996) reports that beneficial social supports tend to meet the following requirements: they provide emotional support, they enhance self-esteem, they encourage a sense of belonging, they offer constructive feedback, and they engender a feeling of worth (p.35). From this we may infer that social interaction is a key variable in emotional well-being.

Socio-Biological Stressors

Stress is a relational concept describing certain kinds of adaptive commerce between an organism and its environment (Lazarus, 1982, p.137). Stress can result from stimuli found in rapid change, failure or the threat of failure, noxious or unpleasant agents in the environment, isolation, and bereavement. Biochemical patterning appears to be determined by social factors including social role, personality, life style, and perception mechanisms (Henry & Ely, 1980). To illustrate this, Henry and Ely (1980) draw an analogy between a Type A (aggressive, impatient) individual and his work and a dominant mouse closed in a cage with other mice. While the man has different coping and perceptual abilities, both organisms are responding to the subtle environmental activation of the limbic hypothalamic system and exhibit intense and competitive behavior with a sense of time urgency. These authors claim that social status and predominant behavior patterns affect "the central nervous system's perception of psychosocial stimuli and so in turn the specificity of the efferent limb of the physiological response" (Henry & Ely, 1980, p. 110). Aldwin (1994) argues that if the mind and brain do transact, then, being regulated by the brain, organ systems are subject to influence by the mind, and, in turn, anything that affects the mind (e.g., society and culture).

A perceived lack of control can lead to an increase in psychosomatic disorders. "A breakdown in motivation (giving-up syndrome) is a crucial element in development of psychosomatic disorders" (Wills & Langner, 1980, p.167).

And, as reported earlier, low-income respondents have more than twice the psychosomatic symptomatology of higher income levels.

Thus, seemingly distinct variables such as sociocultural, psychological, and biological factors become linked. Research suggests one such link between immunity and resilience: "this research indicates that resilience to physical illness can be enhanced by modifying psychosocial stressors which have negative influences on the immune system" (Mangham et al., 1994 p.13). Thus, stress-induced emotions, neuroendocrine functions, and the immune system may aptly be examined in an integrative framework.

Social-Environmental Effects of Stress

Variables that place individuals at risk of unacceptable stress levels include parental psychopathology, poverty, crowding, and membership in a deviant peer group (Mangham et al., 1994, p.5). Individuals who lack coping resources to meet such challenges may react to stress with anti-social behaviors. Criminal activity has been viewed by some scholars as a coping response to social stressors. Note what Schlesinger and Revitch have to say about this:

> Criminal adaptation to realistic and direct stress (i.e. poverty or crowded living conditions) can be thought of as "rational" crime. Stress that is realistic and indirect or objectionably unmeasurable (i.e. psychological conflict) mediates criminal adaptation through the individuals own personality or psychopathology and can be considered "irrational" crime (Schlesinger & Revitch, 1980, p.175).

Child abuse and family violence are viewed as unhealthy adaptations to social stressors. While family violence occurs among all social strata, it does appear to be more prevalent in lower income households where the stress of fewer available resources compounds other types of stress. (Schlesinger & Revitch, 1980).

Even white collar crime is linked to stressors such as lack of financial resources, loss of job, or low self-esteem (Schlesinger & Revitch, 1980). Other work related stress may impact the organization through reduced productivity and poor quality of work. A byproduct of impaired productivity is waste, manifested by lost time, equipment breakdowns, and wasted materials. The 3 A's - absenteeism, accidents, and alcoholism all are related to unacceptably high levels of stress. (Warshaw, 1984). In the work place stress contributes to poor morale, excessive focus on grievances, sabotage, and increased attrition rate.

Discussion

Satisfaction of our physical, psychological, and social needs demands close and meaningful links with our fellow humans. For most of us, interpersonal relationships dominate daily existence. While interdependence is a necessary fact of human existence, it is also a key source of stress. Hence, "subjective unhappiness is most strongly determined by interpersonal discord: conflict and rejection in interaction with others" (Wills & Langner, 1980, p.163).

A significant link exists between social-environmental influences and physiology. Increasing evidence suggests that stress increases vulnerability to illness, and that a lack of social support increases the rates of morbidity and mortality (Aldwin, 1994). Studies also show that individuals with strong social supports have lower levels of symptomatology compared with those lacking social support (Wills & Langner, 1980). The reason social supports have such a marked effect appears to be the reassurance and acceptance conveyed to the stressed individual which in turn contributes to a sense of self-esteem and predictability. Thus, stress and comfort are related to the quality of one's interpersonal relationships.

Psychological theories tend to focus on the immediate situation and how cognitive and affective processes affect coping patterns. Both biological and psychological theories view the environment as a stimulus or source of stress. However, interpersonal relationships, customs, norms, role conflict, and increasing changes in society are bidirectional in that they affect the individual and are in turn affected by the individual in an on-going interaction. Thus, a comprehensive explanation of stress will include the multidimensional variables of the whole person in the social environment. An integrative model of human stress links social-environmental perspectives to biomedical and psychological findings.

CHAPTER 5
Physiological Effects of the Stress Response

Virtually all contemporary experts in psychosomatic medicine accept a causal relationship between stress levels and susceptibility to disease. The biological model has identified numerous physiological signs of stress including increased heart rate, interrupted breathing rate, elevated glucose levels, blood coagulation, decreased clotting time, perspiration and increased gastric acidity. Other somatic signs include loss of appetite, sleeplessness, profuse sweating, shaking hands, fainting, lower back pain, arthritic pain, teeth grinding, diarrhoea and nausea (Brief, Schuler, & Sell, 1981; Glasser, 1984). Stress may also cause a quickened breathing rate that results in hyperventilation, an acute stress response that may produce nausea, vomiting, and chest pains. This behavior is part of the "fight or flight" response where the body increases oxygen intake and decreases carbon dioxide expulsion. When stressed, the body prepares itself for battle or hasty retreat - the fight or flight response; however, when the physical response necessary to end the stress reaction does not occur, chronic stress results which can lead to fatigue and even disease (Hafen, et al. 1996; Witmer & Sweeney, 1992).

A stress-responsive organ that is slow to return to its baseline activity after it has undergone psychophysiological arousal may produce homeostatic failure. Such homeostatic failure has been implicated in the onset of disease because the slow deactivation of autonomic excitation increases the strain on that

particular system (Everly & Rosenfeld, 1981; Hafen, et al., 1996; Witmer & Sweeney, 1992). Thus, chronic stress which precipitates extended arousal is positively correlated with psychosomatic illnesses:

> There appears to be anatomical, physiological, and neurochemical evidence that cognitive-affective responses to stress can alter the functioning of those vital hypothalamic-pituitary pathways that modulate endocrine, autonomic, and immune processes. Alteration of these systems and of the brain sets the stage for the onset of disease. The fact that the brain itself can be a target organ for hormones produced both by its own neurosecretory cells and by the pituitary suggests that brain functioning can be altered by stress (Zegans, 1982, p.150).

Psychosomatic disorders generally attributed to prolonged stress include: gastrointestinal disorders such as peptic ulcers and ulcerative colitis; cardiovascular disorders including hypertension, arrhythmias; respiratory and allergic disorders; neuromuscular disorders such as migraine headache and chronic back pain; skin diseases; and dental problems. It appears to some investigators that the stress reaction begins in the brain and spreads through the various body systems, and in this way chronic stress contributes to the erosion and malfunction of the body's systems (Hafen, et al. 1996).

A Canadian study of 2,000 management and professional personnel revealed five basic stress-symptom patterns: i) emotional distress - including insomnia, fatigue, loss of appetite, moodiness, and depression, ii) medication use- including sleeping pills, diet drugs, pain reliever, and tranquillizer; iii) cardiovascular symptoms - including high blood pressure, rapid heart beat and

heart disease; iv) gastrointestinal symptoms - including ulcers, colitis, and digestive problems; v) allergy-respiratory symptoms - including hay fever, eczema and psoriasis, asthma and other respiratory problems (Howard, Cunningham, & Rechnitzer, 1978; Romano, 1992). Whatever the response to stress, the outward disturbances usually pass rather quickly, however, the effects tend to be cumulative and in this way physiological reactions to stress can, in the long run, contribute to physical deterioration and debilitation.

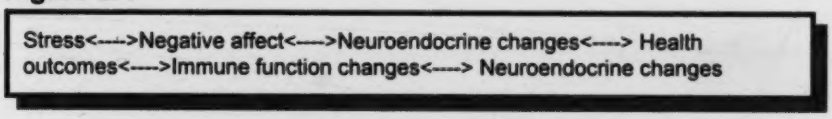
Stress and the Body Systems

The long-term effects of chronic stress include salt retention, increased fat and cholesterol in the blood stream, erratic heart rhythms, increased blood pressure, excess stomach acid, general irritability, and suppression of immune system (Hafen, et al. 1996). Numerous diseases and malfunctions are associated with a suppressed immune system; and some research indicates that stress increases susceptibility to the common cold. That excessive stress can exert a generalized immunosuppressive effect is confirmed in studies of controlled stimulation in animals where tumour formation follows high stress stimulation. In another study, rats receiving shocks were found to be more susceptible to viruses than rats not receiving shocks (Turkkan, Brady, & Harris, 1982).

While the mechanisms through which stress affects the immune system are not clearly understood, the central nervous system and the immune system

have complex, bidirectional relationships; and there is evidence that the brain monitors immune system processes. Figure 2:1 shows how stress and emotions affect the immune system (Aldwin, 1994).

Figure 2:1



Given that the various components of the immune system need to communicate in order to function, it is not surprising that there are receptor cites for neurotransmitters on immune system cells.

Under stress the endocrine system may produce enough catecholamine to trigger a heart attack or a stroke (Hafen et al., 1996). Cortisol, another stress-related hormone, has been linked with depression and feelings of hopelessness and helplessness. High levels of cortisol weaken the immune system and render it less capable of dealing with health menaces such as cancer cells (Hafen et al., 1996). Thus, cortisol has been identified as an important link between personality, stress and cancer (Eysenck, 1988). Rats that had previously received shocks and were again placed in the shock chamber, showed higher levels of stress hormones than never-shocked rats that were placed in the same chamber (Turkkan, Brady, & Harris, 1982).

Empirical evidence also suggest that the cardiovascular system is adversely affected by stress. Prolonged stress causes minute tears in the heart

muscle and increases heart rate, blood pressure, and cholesterol contributing to coronary heart disease (Hafen, et al. 1996). Research indicates that heart disease is lessened in societies with low stress levels; however, it is the number one killer in the Western world. Weiner (1981) notes that hypertension is linked to psychological, sociological, and physiological influences and is therefore not caused solely by stress. One study found that monkeys who received short-interval programmed shocks had higher blood pressure levels than monkeys that received programmed shock at longer intervals (Turkkan, Brady, & Harris, 1982, p.157).

Respiratory system disorders such as allergy and asthma have traditionally been linked to somatic variables; however, evidence suggests that they now appear to have a psychological connections as well. For instance, studies show that subjects with hay fever respond minimally, if at all, when in contact with their allergenic substance in a non-threatening environment in which they feel secure. In more stressful environments, however, these individuals experience somatic reactions to their allergenic substance. Numerous studies have confirmed that bronchial asthma can be triggered, or exacerbated, by psychosocial stimulation (Aldwin, 1994; Hafen et al., 1996).

The skin is the largest respiratory organ of the body and is significantly affected by stress. Skin disorders such as eczema, acne, and psoriasis have all been linked to stress. The conclusion that the skin is a prime target for excessive stress rests primarily on clinical case reports wherein neurodermatological

syndromes have been caused and exacerbated through the manipulation of psychosocial stimuli (Aldwin, 1994; Hafen et al., 1996).

The musculoskeletal system plays an important role in the fight or flight response. Common stress-related disorders include low back pain where a contraction of the back muscles with no associated action causes decreased blood flow and increased metabolites producing pain. Tension headache offers a similar profile: the muscles of the head and neck kept in prolonged contraction produce pain through the same mechanism. This is to be differentiated from vascular headaches which seem to begin in the time period following prolonged tension, when muscles have already relaxed.

The gastrointestinal system is often cited as the origin of stress related symptomatology. Irritable bowel syndrome is a common complaint among chronic worriers (Hafen et al., 1996). Among them the production of stomach acid is disturbed by prolonged stress which causes unwanted complications in the entire gastrointestinal system. Turkkan, Brady, and Harris (1982) report that gastrointestinal changes of pathological proportions, i.e. peptic ulcers, may be the behavioral-physiological consequences of prolonged stressful interactions (p.168).

The correlation between stress and health suggests that as a species we are rather resilient to stress. However, this relationship increases the difficulty in establishing a definitive causal relation between a stressor and a particular disease, since not everyone who experiences stress becomes ill (Aldwin, 1994).

Friedman (1991) agrees that stress does not always cause somatic illness, but when it does, several major hypotheses attempt to explain it:

i) the physiological stress response may cause harm, especially if an already compromised organ is involved;

ii) the acute stress response may cause temporary harm, but repeated stress may lead to permanent damage;

iii) the acute bodily reaction may become chronic if it becomes conditioned to a benign stimulus resembling the stressor. Such a benign stimulus may be a more regular part of the individual's environment and provoke an unnecessary coping response;

iv) a coping strategy may be used successfully but the physiological component is not terminated when the challenge is mastered. A reverberating circuit is established, which puts unusual strain on the body;

v) a minor stress provocation releases an inappropriately severe physiological response. Modulation is lacking that grades the body's reaction according to the nature of the threat. When all stresses are responded to as major assaults, abnormal physiological reactions are possible;

vi) a physiological response appropriate and adequate to cope with a given threat may result in damage to some other aspect of the body through inhibiting a benign but vital body process or stimulating an irritating one;

vii) coping strategies can misfire when the behavioral component is inhibited but the physiological aspect is expressed (fight behavior inhibited but not its physiological component). The physiological aspects of a blocked action can be continuously repeated since no appropriate cutoff signal is received (Zegans, 1982, p.146).

Increasing evidence suggests that how one copes with stress can be more important than the stressor itself (Aldwin, 1994; Hafen et al., 1996). Thus, it is clear that individuals possess differing resources to cope with stress and these resources moderate significantly its effects.

Discussion

Stress triggers the "fight or flight response," but, when neither flight nor fight is possible, the body's systems are adversely affected if the systems remain in a heightened state of arousal (Glasser, 1984; Brief, Schuler, & Sell, 1981). The biological stress response appears to be initiated by cognitive interpretations of internal or external stimuli, which in turn triggers the adrenocorticotrophic system to supply energy, and stress steroids. Thus, psychological interpretation of stimuli precedes physiological response. However, once the physiological stress response has been initiated, changes in brain chemistry affect cognitive processes which, in turn, will either increase or reduce the flow of stress hormones (Hamilton, 1980).

Psychological disorders such as anxiety, manic behavior, depression, and schizophrenia, also may be induced by erosion of the immune system (Aldwin, 1994; Hafen, 1996). Poor life style habits further exacerbate a deteriorating condition. Behaviours such as smoking, substance abuse, poor diet, lack of exercise, and poor sleeping patterns heighten susceptibility to illness. Thus, stressors are merely the catalyst for a progression of interactive behaviours

resulting in systemic changes that lead to physiological and psychological dysfunction. In summary, current research suggests the following: a) a causal relationship exists between stress levels and susceptibility to disease, b) stress affects the mind first and then, through complex circuitry linking the mind and body, affects the body systems, c) chronic stress results when the physical response (fight or flight) necessary to end the stress reaction does not occur, d) chronic stress increases the strain on the body systems and this can lead to disease, e) the deleterious effects of stress can be controlled through appropriate coping strategies.

CHAPTER 6
Coping Styles and Defense Mechanisms

Coping Defined

With the perception of a threatening stimulus, the cognitive processes begin a secondary appraisal which involves a search for coping responses to eliminate, or reduce, the threat. Coping is "the sum total of all the strategies employed by an individual to deal with a significant threat to his psychological ability" (Krohne & Rogner, 1982, p.169). Coping strategies may take the form of overt action such as escape, avoidance, or confrontation, or covert strategies such as denial, repression, or sublimation. Krohne and Rogner (1982) hypothesize that intrapsychic defense mechanisms, such as denial, intellectualization, or repression, engage when overt coping behavior is not successful.

Hamilton (1982) states that all "coping is the outcome of intervening stress reducing processes that lead to the avoidance of unpleasant emotions, and coping is affected by cognitive processes of primary and secondary appraisal" (p.117). Thus, coping responses are borne out of cognitive processes where "appraisal is the process of matching, testing, comparing, and decision making in short-term working memory" (Hamilton, 1982, p.117). The mind plays important roles in the perception and the interpretation of stress as well as in the creation of effective coping strategies.

The stress response includes a preparation and a confrontation period: "increased attention to threat-relevant information (sensitive coping) during preparation can facilitate the construction of stress regulation. This regulation in turn can be helpful in dealing with the danger during confrontation" (Krohne & Langner, 1982, p.186). However, increased attention and heightened arousal can impair task-relevant information. By rejecting threat information (repressive coping), arousal will not be heightened and thus, task-relevant information will not be disturbed. On the other hand, low arousal can be problematic in that there is little motivation to prepare for the aversive situation.

Coping Styles

There are three broad areas of coping response based on appraisal, actions, and emotions. In appraisal focused coping individuals use logic and analysis to find meaning in the situation. Cognitive strategies such as reviewing past experiences, possible actions, likely outcomes, and redefining the situation may be employed in appraisal focused coping. Other more evasive measures may also be applied, i.e. denial, repression, projection, and sublimation (Moos & Billings, 1980).

Problem-focused coping, on the other hand, attempts to reduce or eliminate stress through problem-solving. Some of these strategies include seeking advice, changing plans, learning skills to address the stressor, and

taking direct action to solve the situation (Moos & Billings, 1982). These measures are taken to reduce the source of the threat.

A third coping response involves maintaining emotional equilibrium (known as emotion-focused coping). Here strategies that address affect are employed. For instance, suppressing emotional response, delaying emotional reaction, or resigning oneself to the situation, are responses aimed at maintaining emotional equilibrium (Moos & Billings, 1982). Another form of emotional coping involves emotional discharge - wherein verbal expressions, crying, smoking, overeating, impulsive acting out all constitute behaviors aimed at emotional release (p.218).

There are two approaches to the problem of demands exceeding capabilities. The first involves reducing the demands, this may be done by limiting task demands or by reducing aspiration levels. The second involves improving capabilities to cope, this can be done by increasing effort or practice (Laux & Vossel, 1982). Likewise, there are two strategies for coping with aversive stimuli in achievement situations. Effort can remain constant while performance deteriorates, or effort can be increased to keep performance constant. Research indicates that the latter strategy is associated with greater mental and physiological strain (Schulz & Schonpflug, 1982).

In order to reduce a threat one may attempt to control the flow of information pertaining to the stressor. Modes of information and behavior control vary according to the individual and the situation directly affecting personal

response patterns. Some possible scenarios of information and behavior control are listed below:

i) when information control and behavior control are possible, the danger stimulus can be predicted and reacted to accordingly, and the anxiety reaction will not result;

ii) when information control is possible, and behavior control impossible - information about the danger stimulus is provided but the person cannot influence this stimulus at the moment. An overt behavior is not possible; therefore, manifestations of intrapsychic reactions are to be expected. State anxiety should increase when the intrapsychic reactions prove to be ineffective in eliminating threat;

iii) when information control is impossible and behavior control possible - within the context of a general (vague) appraisal of threat there are no concrete cues to the danger stimulus. However, a reaction can be executed after its occurrence. That means that in such situations escape but not avoidance reactions are possible. Therefore fear instead of anxiety or intrapsychic reactions should be observed;

iv) when information control and behavior control are impossible. The aversive event can neither be predicted nor influenced after its occurrence. This situation should result in learned helplessness (Krohne & Rogner, 1982, p.176).

Thus, one can control information so that knowledge of an aversive event is available prior to its occurrence, or, one may control behavior in that reactions to the aversive event are mastered. In one study subjects in a threat of shock condition reported significantly more anxiety and manifested significantly higher

pulse rates than subjects in a non-threat, control condition (Houston, 1982, p.197).

Individuals who avoid or deny challenges tend to feel helpless, have poor adjustment, and demonstrate weak coping strategies, and individuals who blame others for their illness tend to show poor psychological adjustment (Witmer & Sweeney, 1980). Thus, attributions based on blame, denial, and repression contribute to dysfunctional attitudes and feelings of helplessness.

Coping Styles and Biological Processes

Studies reveal consistently high correlations among attitudes, coping styles and serious illnesses such as cancer and heart disease (Aldwin, 1994; Eysenck, 1988; Hafen et al., 1996). To better understand these correlations we will look at two illnesses strongly correlated with certain coping styles: cancer and heart disease (Eysenck, 1988). In one study researchers were able to predict the likelihood of death from cancer based solely on personality types. This study had a prediction accuracy six times higher than predictions based on cigarette smoking (Eysenck, 1988). Almost half of the Type 1-cancer prone personalities died from cancer, while only 10% died from heart disease. The Type 2's - those prone to coronary heart disease - were less likely to die from cancer (about 20%). Yet, more than 30% of the Type 2's died from heart disease. Subjects who evidenced high stress levels succumbed to fatal illness at almost twice the rate as non-stressed subjects (Eysenck, 1988). Thus, personality characteristics appear to play an important role in coping patterns

which in turn affect susceptibility to illness. In significant measure, personality - the consistent core of character and temperament that dictates how we react to the world around us - determines our susceptibility to disease (Hafen et al., 1996, p.125).

The Cancer-Prone Personality

Studies suggest that the cancer-prone person is unassertive, avoids conflict, fails to express negative emotions, and presents a compliant, personality (Eysenck, 1988). This personality is known as Type C and tends to combine two major features: a) an inability to express emotions such as fear, anger, and anxiety; and b) an inability to cope with stress and a tendency to feel hopeless, helpless, and depressed (Hafen et al., 1996). This sense of hopelessness and helplessness contributes to a corresponding decrease in the efficiency of the immune system which accounts for the higher number of deaths among cancer patients exhibiting Type C personality.

A study of 150 Melanoma patients revealed that the Type C personality had more aggressive tumours, were more likely to have recurring cancer, and were more likely to die (Hafen et al., 1996). The "cancer personality," then, is kind, sweet, and repressed, however, this profile conceals anger, hurt, and hostility. Eysenck (1988) reports that individuals more expressive of their emotions are less likely to develop cancer.

The Coronary Heart Disease-Prone Personality

Unlike the cancer-prone personality who has problems expressing negative emotion, the heart disease-prone personality tends to over-express anger and hostility (Eysenck, 1988). These individuals are classified by Eysenck as Type A's; however, not all characteristics of the Type A persona contribute to coronary heart disease. Anger, hostility, and aggression appear to be the traits most destructive to the integrity of the circulatory system (Eysenck, 1988). Type A individuals who do not exhibit hostility and anger are less likely to experience coronary heart disease. Type A's who have an underlying hostility, suspicion, and anger, experience chronic physiological arousal which increases heart rate, blood pressure, and blood cholesterol and fat levels which, over an extended period of time, greatly increase the risk for heart disease. Coping strategies, then, impact the neuroendocrine response patterns which in turn affect health.

The Effect of Coping on the Body

Coping styles are also correlated with the onset of psychosomatic illness (Henry & Ely, 1980; Vaillant, 1979). The activity of the sympathetic nervous system increases during coping development, but decreases when effective strategies have been established. Thus, effective defenses (adequate coping behaviors) are characterized by a "significant reduction in internal physiological activation" (Henry & Ely, 1980, p.108). "Studies show that avoidant strategies were more effective in reducing emotional distress in the short term, while

approach strategies were more effective over the long term" (Aldwin, 1994, p.153).

The association between coping styles and health outcomes is also affected by the environmental context. One study of Norwegian Army parachutist trainees examined psychological variables, coping processes, and neuroendocrine responses and found that general ability level, defense mechanisms, motivation, and role identity all played a significant part in challenging situations, such as jumping from an airplane, and this in turn led to high cortisol levels. However, after coping patterns were established, variance among the subjects depended on the relationship between resultant achievement motivation and performance, and there was a direct correlation between development of coping processes and normal cortisol levels (Henry and Ely, 1980). This research supports the premise that perception of events, rather than the events themselves, is a key determinant of coping behavior.

The Social Environment and Coping

The sociocultural viewpoint emphasizes that coping behavior usually occurs in a social context and is both affected by that context and contributes to its change. Cultures vary in the type of emotion-focused coping sanctioned: some cultures focus on the suppression of emotions while others approve of the display of emotions in appropriate settings. Coping in a nonculturally prescribed manner may increase stress. Two ways culture affects the experience of stress

include: i) certain stressful life events that are seen as normative - most individuals in a given culture or cultural subgroup will experience a particular event at specified times in their lives; ii) the differential allocation of social resources - cultures pattern the types and levels of stress that individuals are likely to experience.

How an individual copes in the social environment is affected by four factors: the appraisal of stress, the individual's coping resources, the resources provided by the culture, and the reactions of others (Vaillant, 1979). The outcome of coping not only has psychological and physical outcomes, but also social and cultural outcomes. To the extent an individual (or groups of individuals) modify or create cultural institutions in the process of coping with a problem, they also affect the culture, providing a means of coping for others facing similar problems.

Cultural beliefs and values influence not only individual beliefs and values, but also the reaction of others in the situation, which also affect the appraisal of stress. Aldwin (1994) states that culture affects stress and coping processes in at least four ways:

i) the cultural context shapes the types of stressors that an individual is likely to experience;

ii) culture may also affect the appraisal of the stressfulness of a given event;

iii) cultures affect the choice of coping strategies that an individual utilizes in any given situation;

iv) the culture provides different institutional mechanisms by which an individual can cope with stress (p.193).

Cultural demands and resources affect both situational demands and individual resources, which in turn affect the appraisal of stress. For example, loss of a job could lead to long-term economic problems, which in turn could lead to divorce, which in turn could lead to estrangement from children.

Resilience

Resilience is the capacity to "bounce back" in spite of significant stress or adversity. It is a pattern developed over time and characterized by good adaptation despite acute stressors or chronic adversities (Masten, 1994). Gordon and Song (1994) state that "even with the most severe stressors and the most glaring adversities, it is unusual for more than one half of observed individuals to succumb to psychological or social dysfunction" (p.29). Thus, resiliency is viewed by some as a balance between stress and adversity on the one hand, and the ability to cope and the availability of support on the other. Three broad variables contribute to our understanding of resilience: personal characteristics, environmental characteristics, and situational constraints (Gordon & Song, 1994). The complexity of individuals, their actions, and the environments in which they live makes it virtually impossible to determine what variables contribute most to stress resilience. In spite of the effort to isolate the characteristics of resilient individuals, no single variable or set of variables has

emerged as dominant. Thus, most current research focuses on the interaction of personal, environmental, and situational factors.

Resiliency is not only a characteristic but also a process of coping which becomes evident when in use (Mangham et al., 1994). Resiliency is dynamic in that successful coping in one situation tends to strengthen competence in another. Researchers have identified three broad factors contributing to resiliency in individuals: individual factors, familial factors, and support factors. These protective factors foster positive adjustment in individuals at risk for adjustment problems. Individuals who lack these protective elements in their lives may be at a greater risk for psychological or physical debilitation.

Witmer & Sweeney (1992) have identified five life tasks to improve stress resilience: a) spirituality, b) self-regulation, c) work, d) friendship, and e) love. The common thread among these life-tasks is one of harmony and moderation. Spirituality and supportive relationships serves to bolster the sense of self-worth while self-regulation and work provide a sense of dignity and purpose. These life tasks connect the individual with environmental forces such as family, community, and government and provide a sense of belonging. Thus, disease-resistant individuals have a repertoire of effective coping strategies as well as a strong sense of self-worth and dignity.

Discussion

Cognitive theorists view coping as an organized cognitive response set designed to manage stress (Houston, 1982). Studies exploring the relationship between anxiety and cognitive coping strategies find that the more anxious the individual, the greater the maladaptive coping behavior. Thus, cognitive processes appear to play an important role in the selection of specific coping responses. For instance, individual self-talk plays a key role in how the situation is perceived, appraised, and reacted to, as well as how the effect of that response is interpreted. Methods designed to modify the client's self-talk have proven effective in therapy, suggesting that this is indeed an important aspect of the stress response (Laux & Vossel, 1982).

While coping strategies appear to stem from cognitive processes, the scope of the experience goes beyond this domain to include personal, interpersonal, and environmental dynamics. Other mediating variables include social role, cultural expectations, meaning of the event, social support, situational factors, and level of self-confidence, to name a few (Laux & Vossel, 1982).

Studies of resilience focus more on the interaction of multiple variables and less on individual or environmental traits. While resilience allows for effective, action oriented responses to problem solving, even resilient individuals may be overwhelmed when stressors exceed their coping capacities (Aldwin, 1994; Beardslee, 1989). Defense mechanisms such as denial, projection, and blame are dysfunctional coping styles linked to illness in the disease-prone

individual. Repression, denial, hostility, and aggression have been linked to disease in research linking Type C personalities to cancer (Aldwin, 1994, Hafen et al., 1996). Thus, when the demands of a situation are not met with a suitable coping response to reduce or eliminate the threat, a sense of helplessness may emerge. Helplessness is characteristic of individuals with Type C personality and the disease prognosis for these individuals is poor (Mangham et al., 1994).

While contemporary theorists do not believe that personality causes disease, they do accept that it plays an important role in how one interprets and reacts to life stress. An impressive compilation of research suggests that individuals who do not express their negative emotions are more susceptible to cancer, while those who over-express hostility have an increased susceptibility to heart disease. This relationship leads to the belief that moderate emotional expression is necessary for both mental and physical well-being. The good news is that these traits are more a set of behaviours than fixed characteristics, therefore, change that could lead to disease reduction is possible (Mangham et al., 1994).

The coping abilities and defensive styles that prove most successful in early life will likely be continued through adolescence and adulthood. Self-esteem is directly tied to the efficacy of these strategies; those who have developed successful strategies tend to have a greater sense of ego integrity. A healthy sense of self-esteem can affect the appraisal process. For instance, a confident attitude may facilitate a positive approach to a stressor reducing the

sense of threat that might otherwise be perceived. Moos and Billings (1982) state that a sense of competence prompts a reality oriented coping response that fosters successful outcomes.

Psychological research has tended to neglect social-environmental influences on coping processes. Nevertheless, these factors do play an important role in the appraisal process, either through beliefs and values prevalent within a wider cultural setting or developed through consensual processes in more specific social situations (Aldwin, 1994, p.215). By the same token, social factors help define coping behaviors by establishing standards of behavior in the various strata of the society. We see, then, that the relationship between the individual and the culture is bidirectional - social-environmental stimuli affect the individual whose response then affects the social structure and the environment in an on-going interactive process.

CHAPTER 7
Interventions

Dual Approach to Stress Management

Stress results when an objective or subjective stimuli is perceived as threatening. Thus, stress-management techniques generally have a dual focus: i) direct-action/problem-solving techniques to alter the person-environment relationship (instrumental) and deal directly with the sources of stress and ii) emotional regulation or palliation to address the experience of stress. Direct-action strategies serve to alleviate or modify the potential stressor. Palliative devices, on the other hand, serve to reduce individual vulnerability - counselling, meditation, and somatic-oriented devices, such as drugs, relaxation training, and biofeedback, aimed at moderating the bodily concomitants of stress (Kyriacon, 1980; Laux & Vossel, 1982). In this chapter we will examine interventions offered by mainstream theory in three broad domains of human experience: learning/behavioral, cognitive, and social-environmental theory.

Learning and Behavioral Strategies

Neuroendocrine stress responses affect virtually all body cells, hence, all systems of the body are subject to their effects. It appears that certain coping strategies affect health because they "are associated with patterns of physiological mobilization that predispose to certain disorders but not to others (Holroyd & Lazarus, 1982, p.26). For instance, fluctuations in catecholamines

influencing the "pathogenesis of coronary heart disease are elicited by a coping style that alternates between intense efforts to control stressful transactions and helplessness when coping efforts fail" (Holroyd & Lazarus, 1982, p.26). From this we may conclude that extremes of behavior and emotion adversely affect the homeostasis of the body systems.

Learning and behavioral strategies are designed to alter both physiological and psychological responses to potential stressors. Individuals learn to develop healthy actions and attitudes to replace behaviours that contribute to high stress levels. One example is autonomy training where the individual learns relaxation and coping techniques to facilitate the development of healthy personality styles.

Eysenck (1988) cites a study where heart disease-prone individuals learned proactive ways of expressing their hostility and aggression, while the cancer-prone individuals were taught to become more assertive; the results show remarkable changes in survival rates of both groups. When an event is appraised as threatening catecholamine and cortisol levels usually rise; however when the event is appraised as challenging catecholamine rises while cortisol levels remain low or decline (Holroyd & Lazarus, 1982).

Another method designed to control the physiological components of the stress response is biofeedback. With this method individuals learn to control the somatic consequences of stress by reducing their level of physiological arousal. Individuals who apply learning and behavioral techniques tend to have increased

recovery from disease and to be more disease-resistant in general (Eysenck, 1988; Witmer & Sweeney, 1980).

Coping can also influence health when physiological symptoms are used as coping functions. Or, coping may lead to illness when it involves behaviors harmful to health, such as smoking, substance abuse, and overeating. That coping strategies directly affect health in the aforementioned ways may be ignored when the focus is on the stressor. For instance, illness may result when an individual at risk for heart disease increases smoking in response to stress (Holroyd & Lazarus, 1982). Thus, learning new behaviors, such as effective coping strategies, plays an important role in both the prevention of, and the recovery from, disease.

Cognitive Strategies

Effective cognitive strategies encourage examination of thoughts, impulses, and feelings which contribute to the stress response. Individuals who explore their irrational and dysfunctional thoughts and learn to replace them with positive and productive cognitions demonstrate an increased ability to cope with stress. Studies show that assertive individuals tend to have more positive self-statements and tend to be confident of their actions, while less assertive individuals tend to experience a conflict between positive and negative self-statements (Meichenbaum, Henshaw, & Himel, 1982). Self-statements play a key role in our day-to-day behavior. One study of gymnasts competing for

positions on the U. S. Olympic team found that athletes who used positive self-talk and mental imagery were more successful than those who did not. The investigators concluded:

> the better gymnasts tended to be more self-confident, and they tended to use their anxiety as a stimulant to better performance. The less successful gymnasts seemed to arouse themselves into near panic states by self-verbalizations and images which belied self-doubts and impending tragedies (Meichenbaum, Henshaw, & Himel, 1982, p.136).

Thus, coping strategies increase in effectiveness when they are combined with a sense of confidence that the chosen strategies are appropriate and effective.

Cognitive theorists reason that confidence in ability to manage stress is essential to effective coping behavior. A study involving subjects holding their hand in very cold water over a period of time showed that individuals who had the most difficulty keeping their hand in the water were those who saw themselves as unable to tolerate the pain (Meichenbaum, Henshaw, & Himel, 1982). On the other hand, individuals who kept their hand in the water the longest tended to approach the situation as a challenge. When stress is managed successfully future expectations of self-efficacy lead to more vigorous and persistent efforts to master threatening tasks and situations (Moos & Billings, 1982).

Cognitive methods of treatment for stress are based on the self-talk that precedes and follows a stressful event. Methods include task interruption, videotape reconstruction, or other means to assess facilitative and interfering

thoughts in stressful situations (Laux & Vossel, 1982). Mental imagery cancer patients visualizing white blood cells `eating-up' malignant cancer cells); meditation, and relaxation to restore the body and mind to a healthier dimension. These methods have been employed in intervention programs to alter the internal dialogue and thereby facilitate effective stress management.

Individuals high in trait anxiety tend to lack organized ways of coping with stress and also appear to be unduly preoccupied with stressful situations (Houston, 1982). The higher the trait anxiety, the less likely intellectualization will be employed to cope with stress. "The consistency of findings concerning trait anxiety and preoccupation increases confidence about the generalizability of this relationship to other stressful situations" (Houston, 1982, p.197). Thus, poor performance under stress can be attributed to both impaired function and low aspiration levels.

One experiment with high trait-anxiety individuals taught anxiety management training to one group while a second group learned relaxation without application to coping, and a third group received a placebo, while the fourth group served as a control (Houston, 1982). The following results were noted:

> Anxiety management training was found to be significantly more effective than placebo and relaxation-only conditions in reducing high trait anxiety (and state anxiety in the lab session) and changing highly trait-anxious individuals' maladaptive cognitive coping behaviours, namely, reducing their preoccupation and lack of coping maneuvers (Houston, 1982, p.201).

Thus, there is reason to believe that anxiety management training is more effective than relaxation for direct application to coping with stress. That trait anxiety can be reduced through cognitive coping strategies suggests that trait-anxious individuals are characterized by either preoccupation or lack of coping strategies in stressful situations (Houston, 1982).

When stress is not alleviated, due to inadequate coping methods, it will continue until effective coping strategies are devised. Thus, ineffective strategies for stress management and inadequate attributions about the causes of stress increase rather than decrease stress. Effective coping is contingent on the choice of adequate regulatory activities, including:

i) external control - the external source of stress is removed;

ii) internal control - agents within the system are controlled;

iii) control of confrontation - action is delayed while decision to act is made (Schulz & Schonpflug, 1982, p.56).

A key factor in adequate attributions about the cause of stress appears to be related to the practical use of information arising from the event.

Certain characteristics facilitate the acquisition of coping skills:

i) the person must have certain relevant problem-solving skills (cognitive, motoric, social) in her behavioral repertoire to apply under appropriate circumstances;

ii) the person must be sufficiently motivated to deal directly with the problematic situation;

iii) the person must have the capacity to regulate her affective arousal within a noninterfering moderate range in order to facilitate the implementation of direct coping skills;

iv) the person must have an adequate amount of practice and experience in applying skills to cope directly with particular problematic situations (Meichenbaum, Henshaw & Himel, 1982, p.140).

Thus, personal and interpersonal variables, particularly problem-solving skills, motivation, emotional control, and coping experience, affect the perception, interpretation, appraisal, response, and reappraisal of stressful situations.

Social-Environmental Interventions

Social-environmental explanations for stress provide an integrative model of personal and environmental factors. Social presence may influence the experience of stress and the response and consequences of the response (Laux & Vossel, 1982). For instance, the presence of others may increase arousal, antagonize, or hinder the individual experiencing the stressor. On the other hand, the presence of others may be a source of support, boosting self-esteem and providing practical assistance. Thus one's task performance may be helped or hindered by others. Holroyd and Lazarus (1982) speak to this issue when they observe

> because physiological stress responses result from appraisals of harm, threat, or challenge, they are expected to be firmly embedded in the individual's transactions with the environment and not readily modified without changing these transactions (Holroyd & Lazarus, 1982, p.28).

Thus, stimuli such as interpersonal arguments, divorce or loss of a loved one, a monotonous job or marriage, noise, pollution, dangerous environment, may be perceived as stressful (Wills & Langner, 1980).

A study of middle-aged adults in stressful situations revealed that environmental stressors are addressed with a repertoire of problem-focused and emotion-focused coping methods. Meichenbaum, Henshaw, and Himel (1982) note several cognitive abilities necessary for effective interpersonal problem-solving:

i) ability to recognize the presence of social problems;

ii) ability to think of general alternative solutions to social problems;

iii) ability to consider specific alternative means for solving problems (i.e. means-ends thinking) and to evaluate these means in terms of their probable effectiveness and social acceptability;

iv) ability to consider alternative consequences;

v) ability to perceive cause-and-effect relations in interpersonal events (Meichenbaum, Henshaw, & Himel, 1982, p.138).

These authors suggest that therapists encourage a "problem-solving mental set within the client" and to help the client understand that problems are normal and can be dealt with effectively (p.139). Thus, the client can learn general coping strategies that can be applied to a broad number of situations thereby employing both psychological and social-environmental strategies.

Stress and Income Level

Research confirms a prevalence of psychological disorders in the lower socio-economic strata, implying a link between socio-economic status and level of stress. Thus, effective prevention and humane treatment must focus on providing adequate services to these individuals. With respect to psychological treatment for individuals from lower socio-economic stratas, Wills and Langner (1980) suggest that the demoralization construct be considered and that treatment emphasize the therapeutic relationship. The demoralization construct includes poor self-esteem, hopelessness, dread, confusion, sadness, anxiety, helplessness, and somatic problems.

Wills and Langner (1980) encourage the therapeutic relationship as a method of treating and preventing stress. They believe that talking about one's experiences with a supportive individual promotes psychological and physical health. These authors report that a single session with an attentive and sympathetic person can have a positive effect, although, in fairness, this is not usually the case.

In spite of socio-economic status, it is important for individuals to have social networks for emotional support and guidance. "These environmental resources can affect the appraisal of the threat implied by an event, as well as the choice, and relative effectiveness of coping responses" (Wills & Langner, 1980, p.73). Thus, environmental coping strategies (life skills) are perceived by

those subscribing to a "person in the environment" model of stress to be an important element of stress treatment.

Stress Management Strategies for Organizations

Stress management programs are created for the work place to reduce or eliminate potential stressors, and to modify employee reaction to stressors. It is, therefore, essential to study the organization, its employees, the context of the industry, and its significance within the community, prior to assessing and identifying the predominant stressors (Warshaw, 1984).

Evaluation of the following areas within the organization are recommended before developing and implementing a stress management program: policies regarding employees, communication, reward systems, training and development programs, performance evaluation system, and design of the organization (Brief, Schuler, & Sell, 1981). A stress management program cannot be effectively implemented when the sources of stress have not been accurately identified and assessed.

Because stress results from a wide variety of stimuli, it is seldom a simple task to precisely identify its source. Stress reactions are usually classed into three broad groups: confrontation, avoidance, and withdrawal; and while the choice of reaction is mediated by numerous variables, avoidance is the primary coping mechanism at both the organizational and individual levels (Marshall, 1980). To address individual coping styles and identify sources of stress, Keenan

(1980) suggests the following: i) confrontation behavior can be encouraged with the help of a third party mediator - the problem can be explored and solutions developed; ii) dependence on withdrawal or avoidance activities can be reduced by offering emotional support in individual or group situations. Enhanced communication can facilitate personal awareness of stress and allow for joint solutions to alleviate potential stressors.

A key aspect of organizational involvement in stress management is education of both the organization and its employees with respect to stressors, their effects, effective coping techniques, and preventive measures for stress reduction. Stress management then becomes a two-way street: the organization has an economic and social responsibility to alleviate stress in the workplace, and the employee is responsible to develop the necessary skills to cope effectively with stress (Brief, Schuler, and Sell, 1981). Hence, the organization must make a commitment in terms of resources to attain the expertise necessary to develop and implement an effective stress management program for the work place. Also, the organization and its employees must be committed to the program and willing to take the necessary steps to implement change.

Key questions when evaluating the potential for occupational stress include: i) Does the enactment of the organizational role enhance or reduce the well-being of the individual? ii) Does it enlarge or diminish the person's valued skills and abilities? iii) Does it increase or restrict the person's opportunity and capacity for other valued role enactments (Brief, Schuler, & Sell, 1981)?

While managers emphasize efficiency, productivity, and adaptability, employees value satisfaction and development, therefore, a balanced stress management program must address the needs of both parties. Research shows that the more employees are allowed to participate in decision making, especially decisions that have a direct bearing on their work, the more they experience job satisfaction (Brief, Schuler, & Sell, 1981). The effective manager, then, will endeavour to provide the employee with a sense of autonomy and control within the workplace.

Strategies for Personal Stress Management

Personal stress management strategies are similar to organizational methods in that they require accurate identification and assessment of the source of stress. One model offers six coping strategies for reducing stress: i) assess the situation; ii) obtain feedback for clarification; iii) develop a social support network; iv) organize time effectively; v) avoid stressful situations when possible; vi) modify or eliminate stressors where possible (Janzen, Paterson, & Blashko, 1993). Another technique involves the application of the problem solving approach: identify the problem; list all possible solutions; evaluate possible choices; choose a course of action and evaluate that action as necessary (Schafer, 1978). Self-control can be a useful strategy to prevent personal stress whereas impulsive behavior can hasten stressful situations (Wills & Langner, 1980).

Individuals lacking self-control tend to take risks that increase the possibility of accidents or legal problems. Thus, personal and environmental coping resources can affect appraisal and the coping response. Those who lack social support appear to suffer greater stress and more illness (Vaillant, 1979).

Effective stress management involves more than positive appraisal and appropriate problem solving skills, although these are essential aspects of the program. Life style changes are also necessary for effective stress management: i) regular exercise (produces endorphins - mood enhancers); ii) proper diet; iii) relaxation - using whatever form is most effective for personal relaxation. Selye (1982) states that a daily relaxation period should not be underestimated; life style changes must become a part of one's regular routine to be effective.

The goal of developing life style changes is to create positive habits to replace destructive ones. Schafer (1978) states that the confining force behind habit is compulsive repetition. Even destructive habits can become comfortable in their familiarity. Risk and change create tension while habit requires little effort. Thus, accurate identification of physical, emotional, and psychological habituations can facilitate awareness of stressors that may be controlled through simple life style changes. As Warshaw (1984) so aptly notes, the key to prevention is not to immunize a person against stress, but to strengthen the person's ability to manage it.

Maintenance of a healthy life style is an essential component of a disease resistant body and a stress resistant mind. As we have seen, there are two types

of coping strategies: problem solving strategies and palliative strategies (Taylor, 1990). The former are useful for controllable stressors while the latter are most effective for uncontrollable stressors. Romano (1992) states that while individuals tend to cope with stress in a variety of ways, they need to learn what methods are effective and to incorporate those styles that will produce positive change, developmental growth, and potential for living.

Personal stress management involves learning how to use resources, applying values, creating outlets for ventilation of stress, and permitting displacement of the conflict into other areas where some mastery may be achieved, such as physical exercise, hobbies, (Warshaw, 1984). The individual also needs to identify the meanings he or she has assigned to events that are connected to both behavioral activation and affect (Romano, 1992). Thus, personal stress management tries to provide the individual with the coping mechanisms necessary to effectively manage real and imagined stressors.

While positive focus is an important element of stress management, other measures are also necessary. For instance, direct action may be required to enhance the quality of one's work and/or personal environment by alleviating or reducing potential stressors, hence, improved conditions in the workplace can effectively reduce occupational stress. Brief, Schuler, and Sell (1981) cite the following life domains as most important to overall happiness: family, health, community, work, and spare-time activities. Thus, evaluation of these key components of life quality is necessary for proper identification and assessment

of stressors. Failure to address the broad range of variables will reduce the effectiveness of stress management efforts. We see, then, that effective stress management is highly contingent and flexible and does not assume that some organizational-wide panacea (eg. more participation, clearer roles, relaxation techniques) is the answer to occupational stress problems (Keenan, 1980).

With regard to future trends in research, there appears to be a shift toward multi-disciplinary research using explanatory models influenced by systems theories, and a movement away from linear conceptions of cause and effect (Holt, 1982). Research is also developing in the field of psychometrics designed to measure the magnitude of the stressors with which individuals can effectively cope. However, until industry is able to accurately rate its jobs in terms of the type and magnitude of stressors, there is little scientific basis for selective employment and placement of "vulnerable" individuals (Brief, Schuler, & Sell, 1981).

Discussion

Current theory accepts that stressors originate within three broad areas of the human experience: physical, psychological, and social- environmental. Stress management techniques address these three key areas by altering physiological responses, by changing dysfunctional thinking, by developing support systems, by changing social climate, and by altering maladaptive life-

style patterns (Romano, 1992). An integrative model includes all of these strategies when designing interventions for the reduction of stress.

Certain strategies, such as biofeedback, are effective in controlled settings, but tend to be rather easily disrupted by stress encountered outside the controlled environment. "People simply are unable to exert control over specific physiological responses while they are engaged in transactions with the environment that generate the very same responses" (Holroyd & Lazarus, 1982, p.28).

Cognitive-behavioral strategies identify thinking patterns employed during the stress experience, evaluate coping strategies, and adapt effective coping strategies to meet environmental demands and personal agendas. Without "empirical feedback, therapeutic innovation tends to be shaped by therapists' personal beliefs and conventional wisdom concerning what constitutes effective coping" and such methods are rarely effective (Holroyd & Lazarus, 1982, p.29). While the cognitive model assumes that coping grows out of appraisals of situations and personal experience, the social and cultural influences on coping strategies are seldom examined (Aldwin, 1994, p.107).

The therapist who adheres to the cognitive-behavioral approach to stress reduction seeks to help the client recognize the problem and develop a set of effective problem solving strategies. Meichenbaum, Henshaw and Himel (1982) suggest the following cognitive operations facilitate this process:

i) formulate and define the problem as precisely as possible;

ii) generating a list of alternative solutions including both general strategies and specific tasks;

iii) decide which procedure should be used to solve the problem. Assess the likelihood of various consequences. The client attempts to select the action most likely to solve the initial problem, maximize positive consequences, and minimize negative consequences;

iv) verifying the efficacy of the procedure that is selected. This step requires the client to implement the chosen course of action and to assess whether its consequences are in accordance with what has been anticipated (p.139).

When a discrepancy exists between the actual and predicted outcomes, the strategy is re-examined, and if the discrepancy persists, deemed inappropriate. The client uses this feedback information to return to an earlier stage in problem-solving operations to determine another course of action.

The effectiveness of any stress management program lies in the accurate diagnosis of the sources of stress, the prescribing of specific programs for reducing those particular sources, and the commitment of the individual to positive change. Social-environmental factors can influence appraisal of stress and choice of coping strategies in direct and subtle ways. Subsequently, the assessment of coping strategies presents unique challenges, and, no one scale attempts to measure all facets of coping (Aldwin, 1994).

The important point is to understand clearly which components of the stress process are active in a given context and to make sure that the appropriate concepts and tools are being utilized, whether in research or clinical work. Studies suggest that, in general, individuals utilize coping strategies directed more toward the emotions in loss circumstances, such as illnesses or deaths, whereas coping strategies are directed more toward problems that are practical and interpersonal, involving threat or challenge appraisals. Thus, individuals alter their coping strategies depending upon the situation (Aldwin, 1994, p.103).

"Interventions that either serve to reduce threat or enhance individual feelings of control have been unequivocally demonstrated to have positive effects on both mental and physical health. Examination of both positive and negative outcomes of coping on four levels is needed: physiological, psychological, social, and cultural" (Aldwin, 1994, p.167). Research, therefore, must address behavioral competence, social relationships, emotional stability, academic and vocational achievement, and physical health if it is to provide a comprehensive investigation of this topic.

CHAPTER 8
Conclusion

This study attempted to demonstrate how an integrative approach is essential to effectively investigate the phenomenon of stress. By "integrative" we simply mean that individual theories from the mainstream schools are synthesized with one another to provide a more comprehensive understanding of stress. Evidence provided in this thesis demonstrates that stress is a complex and insufficiently understood phenomenon. While individual theories have proven their relevance to particular aspects of the stress experience, the narrow focus of specific theoretical orientation limits its application. Hence, a comprehensive understanding of stress must adopt an integrative approach that provides insight into the broad range of variables that contribute to the experience of stress.

This thesis does not discount the validity of any of the approaches examined in this work; rather it attempts to describe some of the inadequacies of single theory approaches. Rigid interpretation of symptoms, as is usually provided through singular theory, do not readily account for the wide range of stress sypmtomatology. An explanation must be broad in scope, so that physical, cognitive, and behavioral symptoms are adequately accounted for (Cotton, 1990). Without a thorough examination of the key components of stress it is virtually impossible to determine the exact origins and causes of the problem. Therefore, a comprehensive approach must be flexible in order to explain the

connection between variables, yet firm enough to provide a direction for therapy. The analysis of the mainstream theories of stress undertaken in this thesis has led to the conclusion that stress theory is very much in need of an integrative approach. Indeed, in the absence of an integrated approach, we are left with a fragmented understanding of the phenomenon of stress.

Critique of Mainstream Theory

Biological theory as explicated in the writings of Selye (1980), Zegans (1982), and Kutash and Schlesinger (1980), has assembled a persuasive body of evidence demonstrating that prolonged stress places excessive strain on the body systems which can eventually lead to disease. While the "biological school" has made impressive strides in advancing our knowledge of physiology and endocrinology, such explanations tend to isolate personal and environmental determinants of the stress response. Biological explanations, as demonstrated in chapter two, have several shortcomings including the failure to explain why some individuals who experience ongoing stress are resilient to its adverse effects while others succumb to illness. Another shortcoming of biological theory lies in its assumption that less stimuli produce less stress. This hypothesis is refuted by accumulated research which has shown that low stimulus levels, or boredom, can also result in high stress levels. A third difficulty with this model is its failure to account for intrapsychic conflict. It is evident from biological theory's inability to account for these and other aspects of the stress response that it cannot explain

the phenomenon of stress in its entirety. Thus, while laboratory research provides essential information regarding the function of the organism, it fails to adequately account for some of the non-physiological phenomenon associated with stress. Nor is it sufficient in scope to account for the causes of physiological manifestations.

Psychological theories, such as those portrayed in the writings of Glasser (1984), Goldberger and Breznitz (1982), Weiner (1982), Apter (1991), and Howard (1991), have also made an impressive contribution to the understanding of stress. The "psychological school" places a strong emphasis on the role of the mind in the perception of stress and uses predominantly verbal interventions during therapy to reduce the experience of stress (Kepner, 1993). Cognitive theorists contend that cognitions are primary, preceding physiological arousal; while attribution theorists claim that physiological arousal is first perceived as emotion and is later assigned cognitive meaning (Cotton, 1990). Understanding stress as a function of cognitive appraisal, however, gives considerable credence to rational cognitive processes and implies that stress is dependent upon subjective perception without much regard for objective factors (Aldwin, 1994).

Psychological theory demonstrates a number of other shortcomings. For example, it fails to provide adequate explanations for a number of phenomenon including severe physiological response to minor stress provocation, the role of brain damage or psychiatric affective disorders on mood changes and stress levels, neuro-endocrine malfunction that induce the stress response, and social

and environmental aspects that initiate the stress response. While psychological theory provides detailed explanations for intrapsychic conflict and other psychological phenomenon, it falls short when biological and social-environmental determinants are key players in the stress experience.

Social-environmental theories, as exemplified in the writings of Aldwin, (1994), Kaplan (1980), Warshaw (1984), and Mangham et al. (1994), tend to look at multiple strategies that include social as well as environmental stimuli. The social and cultural environment can influence both the appraisal of stress and the use of coping strategies in direct and subtle ways (Aldwin, 1994). Culture affects not only the types of stressors individuals experience, it also shapes the appraisal processes through the commonly held beliefs, values, and norms of the culture (Aldwin, 1994). The relationship of the environment to the person is reciprocal in that as external factors affect the person, they, in turn, are affected by the person. Consider how the experience of stress for one individual can create stress for others, thereby affecting social interaction and in turn influencing the behavior of the stressed individual. For example, stressful behavior by one individual (e.g. arguing, slamming/stomping) in the work or home environment can cause stress for others which in turn can exacerbate the condition of stress for initiator of the behavior. Life events, culture, values, environmental stimuli, and rapid change may cause or exacerbate the condition of stress. For instance, social-environmental theorists point out that there are

objective external circumstances, such as unemployment, that do not depend upon an individual's perception (Aldwin, 1994).

Stress induced illness has also been linked to socioeconomic status, interpersonal relationships, culture, and other environmental determinants. When social-environmental stimuli are suspected as the source of psychosomatic illness, psychological and physical factors must also be considered by virtue of the fact that other variables affect the experience of stress. Since stress can be induced environmentally as well as intrapsychically, it makes little sense to ignore one at the expense of the other (Aldwin, 1994). Thus, environmental and social factors have a much more extensive role than simply their function as a stimulus or a resource (Aldwin, 1994).

Researchers are moving closer to an understanding of how social and environmental stimuli produce stress. For instance, mainstream theorists are beginning to acknowledge the importance of environmental effects on mental health (Aldwin, 1994; Barnard, 1994; Cotton, 1990; Hafen et al., 1996). Important questions regarding these issues, however, cannot be adequately addressed from biological or psychological perspectives. Therefore, it is necessary to examine the role of external as well as internal variables when evaluating and treating stress.

When stress is not managed effectively its debilitating effects are compounded. Thus, coping strategies dramatically affect the outcome of the stress response. Selecting an effective coping strategy is directly related to

accurate evaluation of the source of the stressor(s). For instance, if a strategy that is designed to reduce stress through reduction of internal physiological activation (i.e. relaxation therapy) is applied to stress that does not stem from biological factors, (e.g. marital stressors) it is unlikely that this method will be successful. Likewise, if stress results from physiological processes, (e.g. biological depression) applying psychological or social-environmental coping strategies will be less effective than methods that address the source of the problem. Thus, in order to accurately determine the origin of stress, as a therapist, one must be familiar with biological, psychological, and social-environmental aspects of stress. Once the source(s) of stress has been accurately identified, coping strategies relevant to the particular case may be applied. For instance, cognitive and marital therapies for stressors arising from marriage; and anti-depressant medication in conjunction with cognitive/behavioral therapies may be successful for biological depression. Thus, to address every case of stress related symptomatology from a singular theory is akin to prescribing one medicine for all physical ailments.

Implications for Practice

Physiological, psychological, and social-environmental mainstream therapies have traditionally operated from closed system approaches. Practitioners subscribing to physiological models address somatic variables, while psychological theorists identify the point of change as mental processes

(Aldwin, 1994; Farber, 1982; Hafen et al., 1996; Lazarus & Coyne, 1980). When there is evidence of psychosomatic problems, the physical process is often seen as an epi-phenomenon related to, but separate from, the underlying mental events (Kepner, 1993). Social-environmentalists, on the other hand, seek to change external variables to control the experience of stress. These causal models assume closed systems and provide linear explanations which fail to bridge the gap between physiological, psychological and social-environmental aspects of the stress experience (Aldwin, 1994).

The key argument for an integrative approach is that change is not based on causal connections of parts, but on the fact that these are all aspects of the same whole (Kepner, 1993). For instance, an individual who suffers from a series of colds may have a compromised immune system due to the debilitating effects of stress. A therapist who does not have a comprehensive understanding of stress may fail to recognize this psychosomatic link. Thus, continuity between the mind, body, and environment cannot be understood when only one agent is addressed as causal; however an integrative perspective does not assume that agents are independent but rather that they are mutually affected by interaction (Aldwin, 1994).

A comprehensive approach to stress provides a better understanding of treatment and prevention. Thus, we speak of bi-directionality of theory wherein the professional has a working knowledge of all the key aspects of the mainstream schools of thought and can effectively integrate this information.

Such knowledge affords a more accurate evaluation of the sources of stress and allows for application of a broad range of stress management strategies. Similarly, a comprehensive understanding of stress allows for a more thorough approach to stress *prevention*.

While it is a daunting task to assimilate information from such a broad field of study, partial explanations offered by individual theory can only be effective for those rare cases explained by that specific theory. Hence, an effective approach must include examination of: i) physiological states, ii) individual behaviours and psychological states, iii) the processes and outcomes of the particular situation, and iv) cultural, social, and environmental influences. Efforts to alleviate stress must also build upon the perspective of the individuals affected, rather than from normative prescriptions. Thus, the professional must consider the person in the environment not only from a theoretical standpoint, but from the personal perspective as well. Valuable information may be obscured if the individual's account of the experience is not examined carefully. Thus, theoretical integration becomes a foundation upon which understanding of the individual is constructed.

Final Statement

While research on the phenomenon of stress has been impeded by the ethical concerns involved in the use of human subjects, it has nevertheless, provided us with an impressive body of data to guide our understanding of this complex topic. We know that our behavior is shaped by biology, culture, context,

developmental maturity, and past history. Individual theory provides insight into these particular aspects of stress which can in turn be integrated into the larger concept of the experience. The overall conclusion of this work is that while a single theory provides an important focus, it cannot provide the knowledge necessary to address the broad issues related to stress. For instance, a cognitive therapist may experience little success with individuals experiencing stress due to external concerns such as unemployment or environmental pollution. Thus, therapists who subscribe to a particular model may fail to investigate a broad range of relevant information of the individual's experience of stress. A comprehensive approach must be developed through an understanding of mainstream theory that addresses the key aspects of the stress experience and allows for recognition of personal variances in each case.

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